

WELLCOME HISTORICAL MEDICAL LIBRARY STORE,
WELLCOME CHEMICAL WORKS,
805, BAY 1,
DARTFORD, KENT.

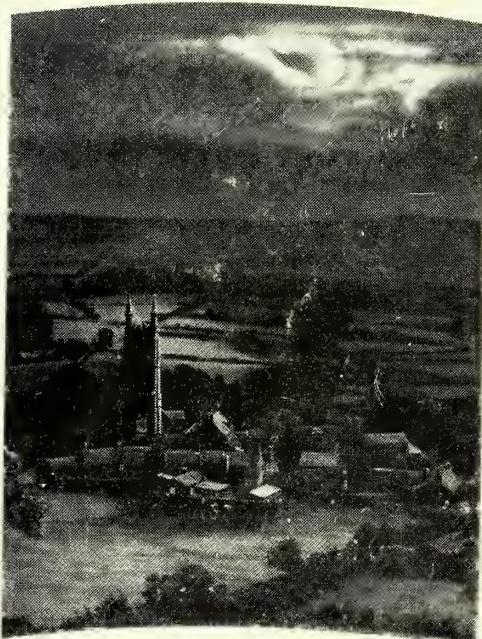
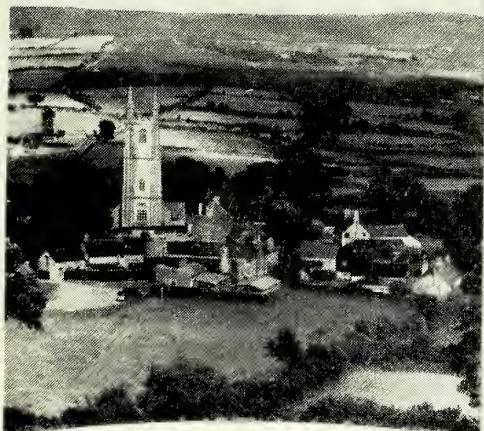


The CHEMIST AND DRUGGIST

ANNUAL SPECIAL ISSUE

JUNE 29 1957

SELECTIVE sedation



DAY & NIGHT

For each individual patient who is in need of sedation or hypnosis, there is a LILLY barbiturate that meets the requirements exactly.

'Seconal Sodium'

When rapid action yet brief duration is called for.

'Sodium Amytal'

WELLCOME HISTORICAL MEDICAL LIBRARY STORE,
For routine sedation in the anxiety case.
WELLCOME CHEMICAL WORKS,

'Tuinal'

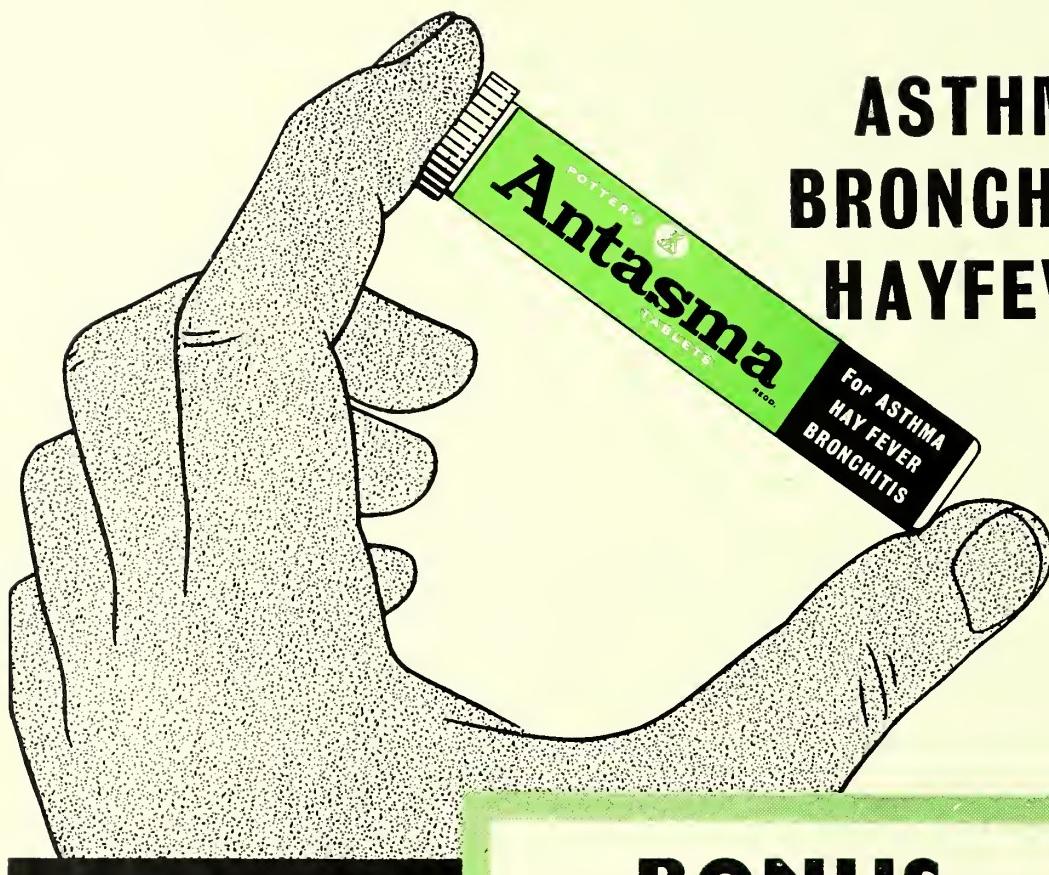
305, BAY 1,
In the chronic insomnia case.
DARTFORD, KENT.

'Amytal'

Sedation in the hypertensive, peptic ulcer, skin or cardiac case.

Let it be a *Lilly* barbiturate

ELI LILLY AND COMPANY LIMITED, BASINGSTOKE, ENGLAND



ASTHMA BRONCHITIS HAYFEVER

Potter's

introduce a NEW asthma preparation in tablet form.

Asthma sufferers today expect a form of relief that is immediate. Something that can be taken any time, anywhere. Potter & Clarke Ltd., whose name has so long been associated with asthma remedies, now introduce Potter's ANTASMA, a tablet preparation. This form of ON-THE-SPOT TREATMENT is the outcome of intense research and tests have shown it to be unusually quick and effective in its results. A sure seller, Potter's ANTASMA is sold in single phials or in a large economy carton holding three.

BONUS OFFER

Introductory BONUS TERMS through WHOLE-SALERS ONLY are available for an indefinite period. The bonus is based on MINIMUM QUANTITIES of 2 dozen cartons of the small size together with one dozen of the large size, packed in an attractive display outer.

ONE CARTON IN EVERY DOZEN FREE

PRICES	WHOLESALE	RETAIL
SMALL SIZE (1 phial—12 tablets)	14/3 per dozen plus P. Tax = 18/6	2/-
LARGE SIZE (3 phials—36 tablets)	36/- per dozen plus P. Tax = 46/9	5/-

THROUGH WHOLESALERS ONLY PLEASE



FORMULA : Each tablet contains :
EPHEN. HYDROCHLOR. B.P. 5.46% w/w.
CAFFEIN. 10.92%. POT. IOD. 12.28%.
THEOPHYLL. c. AETHYLENEDIAM. 21.84%.
PHENACET. 21.84%.
CALC. GLUCON. 21.84%.



Sole Proprietors and Manufacturers :

POTTER & CLARKE LIMITED • RIVER ROAD • BARKING • ESSEX • RIPPleway 3041



YES! GRADUATION to
solids is so easy with
COW & GATE
CEREAL FOOD

You will see this delightful picture in an extensive national magazine press campaign which is to be launched in the middle of June. Large spaces in magazines with a maximum coverage and big circulations have been booked and we expect a heavy response—so place your order now and BE PREPARED FOR THE RUSH!

Cow & Gate CEREAL FOOD is packed in full colour 8 oz. cartons, 1 dozen to the outer, and retails at 1/6d.

Trade price 14/5d. per dozen.

Trade price 13/9d. per dozen (minimum direct order 2 dozen).

Trade price 13/6d. per dozen (minimum direct order 6 dozen).

Carriage paid on 2 dozen and over.

Please address your enquiries and requests for promotion matter to:—
COW & GATE LTD., Guildford, Surrey.



COW & GATE CEREAL FOOD
FOR WEANING AND TODDLERS

5541



Sno-Stik



NEW STICK DEODORANT that stops perspiration



NEW AMERICAN FORMULA

Women have been waiting for this—a deodorant stick which gives really *lasting* effectiveness. Made to a new American formula, Sno-Stik acts two ways. Sno-Stik kills odour instantly; it also stops unwanted perspiration which is the cause of the odour. One application gives all day protection.

ADVERTISING

A huge and concentrated advertising campaign, in the five most important women's publications*, will back Sno-Stik sales in June, July and August. Be sure to display the attractive container on your counter. 1957 is going to be a "Sno-Stik" summer!

* Daily Mirror · Sunday Pictorial
Daily Sketch · Woman · Woman's Own

TRADE TERMS

22/- per dozen plus 30% Purchase Tax. Usual Trade discounts on direct orders. Retail price 3/-.

Made by E. GRIFFITHS HUGHES LIMITED, makers of Sno-Mist Powder and Liquid

BONUS OFFER

FOR 2 WEEKS ONLY

1st JULY — 13th JULY

VITAVEL SYRUP

Here is a liquid vitamin supplement that is truly a delicious drink—Vitavel Syrup. This careful blend of real orange juice and liquid glucose with vitamins A, B₁, C and D is establishing itself as firmly with the public as it has already done with the doctors.



Special Bonus Discount with this Display

(Equivalent to 12 Bottles invoiced as 11.)

2 doz. x 6 oz. VITAVEL SYRUP

STANDARD LIST PRICE

30/- per doz.

BONUS TERMS

27/6 per doz.

SELLING PRICE

45/- per doz.

PROFIT

17/6 per doz.

Write, wire or telephone your order to:
Riverside 5001.

VITAMINS LIMITED



Upper Mall, London, W.6.

**BURROUGH'S
ABSOLUTE ALCOHOL**
JAMES BURROUGH LTD. 1 CALE DISTILLERY LONDON S.E.11.

**Dispensing
CORKS?**



Immediate delivery from
RANKIN BROTHERS & SONS
(RANKIN PARTNERS, LTD.)

OWNERS OF THE FINEST
CORK FORESTS IN PORTUGAL

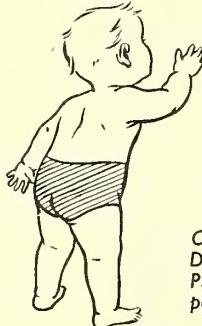
139 Bermondsey St., London, S.E.1
Telephone: HOP 0074

TRADE 'VERLOG' MARK

SURGICAL ELASTIC HOSIERY
Belts, Trusses, Suspensory Bandages, etc.
ATHLETIC SUPPORTS
Knee Caps, Anklets, Jockstraps

THOS. GLOVER & SON, LTD., CARLTON, NOTTINGHAM
Tel.: 58227 (2 lines). Grams: Verlog, Nottingham

**GEORGTON
BABY PANTS**



for the
well-
dressed
Baby

Covered in Nylon and the latest Rayon Designs, and lined with a very soft Plastic. Designed and cut to ensure perfect comfort for the Baby.

★ At Popular Prices.

Wholesale and Shipping only.

Ask your Wholesaler to show you this range in the new carton for counter display



**GEORGE HIGTON
LIMITED**
WINDMILL ROW,
LONDON, S.E.11.

'IMPACT' advertising
creating new sales records!

NERVONE
REGD.

The New Nerve Nutrient

T.V. 'spots' on London and Midlands stations are now adding 'IMPACT' to the hard-selling press, poster and theatre campaign. Are your stocks of 'NERVONE' adequate?

OBtainable from WHOLESALEs EVERYWHERE

AURORAL | FAST SELLERS
COLD WATER DYES

30 brilliant, favourite shades. Orders of one gross bring you a free Counter Display Cabinet on request. Easy 'look-and-choose' opportunity for your customers. Shade Cards and Showcards also available.

48/- per gross: Retail 6d. per packet.
Less 5% for cash in 7 days.

WHITAKER & CO. (KENDAL) LTD.
DYE AND CHEMICAL MANUFACTURERS — KENDAL



THE WORLD'S GREATEST BOOKSHOP

FOYLES
** FOR BOOKS **

NEW, SECONDHAND AND RARE

BOOKS

Foyles have departments for Gramophone Records, Stationery, Handicraft Tools and Materials, Music, Magazine Subscriptions, Foreign Stamps.

119-125 CHARING CROSS ROAD, LONDON, W.C.2

Gerrard 5660 (20 lines) ★ Open 9-6 (Thur. 9-7)
Two minutes from Tottenham Court Road Station

CAMERA BELLOWS

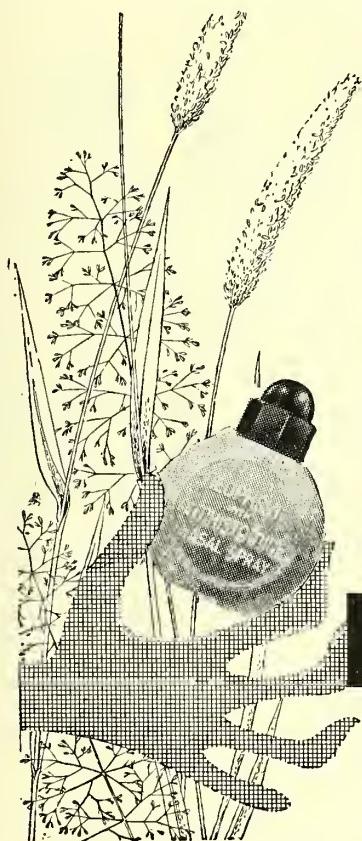
Bellows supplied or fitted

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CLEMENT WAIN LIMITED
NEWCASTLE · STAFFS.
Telephone: 64506

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(continued overleaf)



Spring lengthens into Summer . . . and Hay Fever lingers

Neophryn with Antihistamine safely relieves nasal congestion and local irritation, without causing rebound congestion or other troublesome side-effects. Neophryn with Antihistamine is being widely advertised to the Medical Profession during the Spring and Summer months.

*Supplied in a yellow plastic atomiser,
Retail price : 4/0d.*

NEOPHRYN

with Antihistamine

Trade Mark

BAYER

P R O D U C T S L I M I T E D

Neville House, Kingston-on-Thames, Surrey

Associated exporting company : WINTHROP PRODUCTS LIMITED

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They always come back for more

Advertising, and word of mouth recommendation, bring the customers in—but it's the results that bring them back.

Dr. Page-Barker's Scurf and Dandruff Lotion and D.43 Shampoo have the reputation that ensures repeated sales—a reputation for unfailing reliability in keeping the scalp clean and free from dandruff. Make sure that you have a share in the prestige and profits that come from stocking these ever-popular lines.

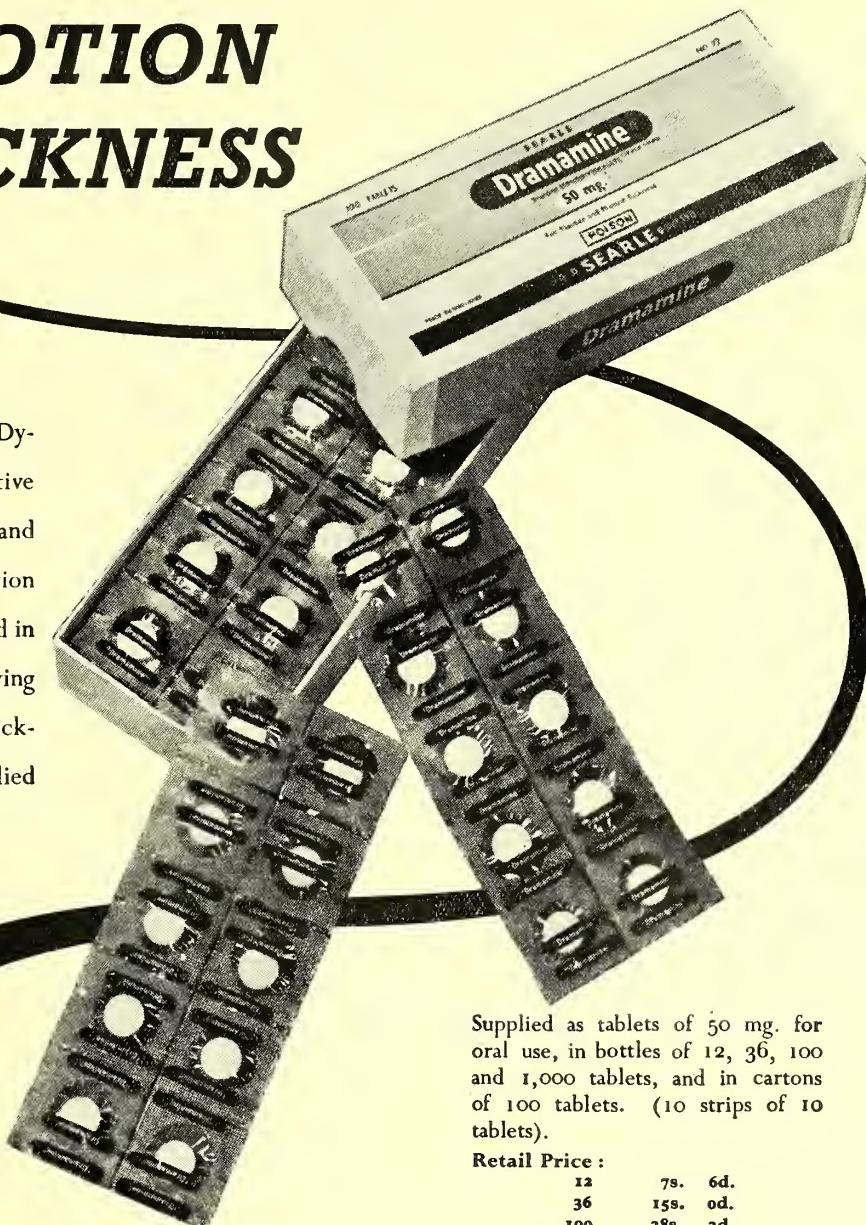
A Page Barker showcard will catch the customer's eye and remind him of his need. Available on request.

THOS. CHRISTY & CO. LTD.,
North Lane, Aldershot,
Hants.

The illustration shows two bottles of Dr. Page-Barker's hair care products. The bottle on the left is labeled "Dr. Page-Barker's SCURF AND DANDRUFF LOTION" and "FOR REMOVING SCURF AND DANDRUFF and NOURISHING THE HAIR". It also has a small circular logo that says "Prepared according to original Formula". The bottle on the right is labeled "D.43 Page Barker's SCURF AND DANDRUFF SHAMPOO SOAPLESS" and "Made in England". Below this label, there is another circular logo that says "Improved Formula" and "THE REAL SHAMPOO FOR USE TO PERMANENT WAVES". Both bottles have dark caps.

Treatment or Prophylaxis of **MOTION SICKNESS**

"Dramamine", Brand of Dymenhydrinate, is an effective non-toxic prophylactic and therapeutic agent for motion sickness. It is also indicated in nausea and vomiting following anaesthesia and in the sickness of pregnancy and allied conditions.



Supplied as tablets of 50 mg. for oral use, in bottles of 12, 36, 100 and 1,000 tablets, and in cartons of 100 tablets. (10 strips of 10 tablets).

Retail Price :

12	7s.	6d.
36	15s.	0d.
100	38s.	3d.
500	184s.	6d.
1000	360s.	0d.

Trade terms 33½% discount.

"Dramamine" is a Registered Trade Mark.

Order through your Wholesaler

SEARLE

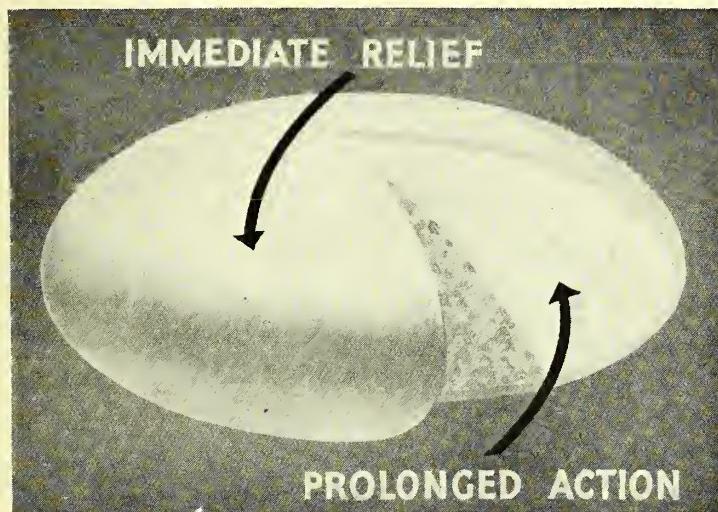
G. D. SEARLE & CO. LTD.
HIGH WYCOMBE, BUCKS. Tel. : High Wycombe 1770

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ISO-BRONCHISAN

Asthma tablets



In the two-layer Iso-Bronchisan tablet *immediate* asthma control follows sub-lingual absorption of the outer cover of Isopropyl-nor-adrenaline. A nucleus of long-acting antiasthmatics, absorbed more slowly from the alimentary tract, ensures *prolonged* abatement of attacks. The combination of properties provides an ideal form of therapy for the ambulant patient.

Tubes of 20: Retail 4/9d. Trade 3/7d.

Bottles of 100: Retail 21/4d. Trade 16/-.

PRESCRIBABLE UNDER FORM E.C.10

SILBE Asthma TABLETS

A combination of bronchodilator agents providing well-tolerated oral anti-asthmatic therapy. For prophylaxis or treatment.

Retail Trade

Box of 8 tablets	1/10d.	1/2d.
Box of 24 tablets	4/4d.	2/8d.
Bottle of 80 tablets	12/11d.	7/11d.

SILBE Asthma INHALANT

A scientific formulation of antispasmodic and bronchodilator substances designed for optimally effective inhalation therapy.

Bottle of ½ oz. (21 grammes) Retail 8/-. Trade 5/-.

SILBE Vest Pocket ATOMISER



Specifically designed for use with Silbe Asthma Inhalant; a high-efficiency nebulizer that is convenient and easily operated by the patient.

Retail Price : 9/-d. Trade 6/3d.

PRESCRIBABLE UNDER FORM E.C.10

SILTEN LTD

SILTEN HOUSE · HATFIELD · Herts
Telephone HATFIELD 3012

Agents for Eire . . . Wilcox Jozeeu & Co. Ltd., 19 Temple Bar, Dublin.

NORIT

90 SECONDS ON T.V. NEXT SUNDAY, JUNE 30th
LARGE SPACES IN EVENING NEWSPAPERS ON
MONDAY, JULY 1st

Medicinal NORIT ACTIVATED CHARCOAL will have 90 seconds participation in A.B.C.'s "What's in Store" programme transmitted over Lancashire, Yorkshire and Midlands T.V. areas on Sunday next, JUNE 30th, and large spaces have been ordered for appearance on Monday, JULY 1st, in EVENING NEWSPAPERS. Other dominating television and newspaper advertisements have been ordered or planned for the future.

NORIT, famous in many countries as an indispensable family medicine, means business in the U.K.

NORIT TABLETS, easy and clean to take, act only on the unpleasant products of indigestion and have no ill effects on the body. Norit is safe, quick and certain in all minor stomach disorders.

- ADVISE ALL CUSTOMERS TO TAKE NORIT WITH THEM WHEN ON HOLIDAY
- EVERYBODY NEEDS NORIT—BE READY FOR BIG DEMAND



THE
PURE, POWERFUL
NATURE MEDICINE
FOR STOMACH
DISORDERS

Order from your wholesaler.

Sole Agents in U.K.—

MACWILL & CO. LTD.

7 WEST ROAD,

Kingston-on-Thames, Surrey.

Telephone: MALden 8558

FRED STOREY LTD

*Manufacturing Chemists
and Wholesale Druggists*
**44, HILL STREET
BELFAST**

*have been appointed
wholesalers of Gevaert
Photographic Products
for Northern Ireland*

GEVAERT
PRONOUNCED "GAVE-ART"

INTRODUCING THE NEW SELFWAY

MACHINE

Fully Guaranteed by
Manufacturers established
OVER 300 YEARS



COMPLETELY RE-DESIGNED TO CONFORM WITH LOCAL BYE-LAWS.

The only Machine of its type which will repay itself within 1 year of purchase.

- OVERALL DIMENSIONS:
- HEIGHT 3ft.
- WIDTH 2ft.
- UNCHIPPABLE, VITREOUS ENAMEL FINISH
- CHOICE OF COLOURS
- ALL STAINLESS STEEL FITTINGS
- FULL DETAILS FROM MANUFACTURERS:

VANDOME & HART
LIMITED
71, THOMAS STREET
MANCHESTER, 4
Tel: Blackfriars 6771

Are you ready?

WITH A GOOD STOCK OF



PLASTIC BABY PANTS?

LI-LO is a name all mothers already know and trust.

The pearl-white film is lanolin-impregnated—so soft and smooth for baby. LI-LO baby pants are washable, completely waterproof, non-staining and hygienic too! New LI-LO baby pants are in elastic or open leg styles (large and medium sizes) and the famous LI-LO 'Snappifit' design. All three contain lanolin—and all bear the seal of the Good Housekeeping Institute. Every pair of LI-LO baby pants is individually packed in an attractive envelope; one dozen of a style and size to a counter display carton.

Popular LI-LO rubber baby pants in superfine white rubber sheeting are still available, in two styles—classic or open leg, in large and medium sizes.

Obtainable from your wholesaler, but should difficulties arise in obtaining supplies, write to us for your nearest distributor.



P B COW & CO LTD . 12 HAY HILL . BERKELEY SQUARE . LONDON . W1

THE BARRIER THAT KEEPS AWAY BITING INSECTS



retail price **3/9d** usual discounts

Kik is a clear colourless liquid designed for one special purpose that of preventing annoyance by biting insects. When Kik has been used these insects will not alight — they keep right away.

Kik is used by applying it to all exposed parts of the body. It creates an invisible barrier which insects will neither penetrate nor even approach.

Kik is neither greasy nor oily and does not stain the skin or clothing. It does not injure delicate fabrics or affect rayon or nylon.

Kik is practically odourless and is quite unobtrusive in use. Only the insects will know it is there.

Kik is safe to use even by those with sensitive skins.

Kik may be used after sunburn lotions have been applied.

A product of **Vale** research
who gave the
world DDT
insecticides



Distributors Thomas Kerfoot & Co. Ltd.,
Vale of Bardsley, Ashton-under-Lyne.

K.1.

Here's something **BRAND NEW**
in Shampoos

NEW

Safada

Cream Shampoo and Hair Conditioner

SAFADA is being launched
with nearly 40,000,000
large space advertisements
in the National Press.

Display SAFADA and cash
in on the big new demand.
It is the shampoo with a special
conditioner that women want—at a price they
can afford to pay...

SAFADA is packed in 3-dozen display boxes.



ORDER NOW FROM

F. W. HAMPSHIRE & CO. LTD. DERBY

**LARSON'S
S.M.D.
SWEDISH MILK DIET**

***the NEW nourishing
Slimming Diet***

• • • • • • • • • • • •

Have you placed your order?

LARSON'S S.M.D. (LARSMID) is already an international success. In this country too, people will soon discover that they can reduce—simply, quickly, pleasantly.

LARSON'S need be taken only 3 days a week and is much more than a way to discourage appetite. It is low in calories but so well fortified with vitamins, minerals, glucose, carbohydrates and protein that, on slimming days, it really nourishes and sustains. That's why women—and men—can take off weight without a hungry moment. Without drugs or exercises either!

Be ready to help your customers win the "battle of the bulge".

**Take advantage NOW of the
special introductory offer!**



Generous

**INTRODUCTORY
OFFER**

ENDS JULY 12th!

SPECIMEN ORDER

I doz. 7/6 size sell for £4.10.0	}	TOTAL £18.0.0
I doz. 22/6 size sell for £13.10.0		

At 12 for the price of 11:

I doz. 7/6 size cost £2.15.0	}	TOTAL £11.0.0
I doz. 22/6 size cost £8.5.0		

**PROFIT £7.0.0
or 64% on outlay**

Normal Terms 33½%
(7/6 size 60/-, 22/6 size 180/- doz.)

• • • • • • • • • • • •

National Advertising
will be seen by millions in
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VACCO

1957 NEWS

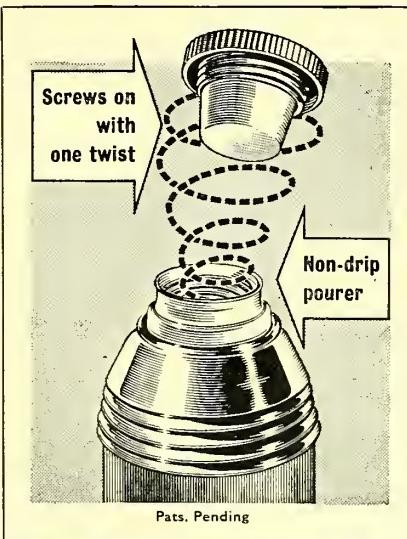
IT'S THE 'SCREW-ON'!

at last—the perfect stopper! VACCO produce the new polythene 'screw-on'.

This new polythene screw-on closure by VACCO is the most important development in flasks for years. 'Screw-ons' will be incorporated in three VACCO models—the TEA FLASK, the MASTER in the 'Metalustre' finish and the new 'STRIPES' MASTER.

THE OLD CLOSURE BUGBEAR—SOLVED!

How to make a foolproof closure with a stopper that was simple to put on, simple to take off—but couldn't pop out; that was the problem. VACCO'S answer is the 'screw-on'—the 'screw-on' screws on with one quick twist: it can't pop out, it can't leak, it stays put. Being polythene, too, it is washable, hygienic and tasteless. In short, the VACCO 'screw-on' out-dates all other closures.



STOPPERS CRITICIZED BY 50%

An independent research on Vacuum Flasks, carried out in January 1957, showed that 37% of the public expressed criticisms, of which over 50% referred to the stopper: of these 32% commented on 'unsatisfactory corks'; 8% objected to the taste given by the stopper: 11% specifically referred to the desirability of plastic stoppers. All the criticisms are decisively met by the new VACCO polythene 'screw-on'—leak-proof, foolproof, tasteless, washable, hygienic, and simple!

Now we'll die of thirst! Why didn't you buy a new Vacco 'screw-on'?



VACCO TEA FLASK

(Model T.F.2: Capacity 16 fluid oz.)

This most popular of flasks with its built-in milk bottle, renowned amongst stockists and public in this country and export markets, is now even better with the new 'SCREW-ON'. In polychromatic Pastel Blue.

Retail Price: 9/3 (Inc. P.T.)

Refills, complete with closure units, fitting "Screw-on" models only, Item R.2. Retail Price: 4/6d.

All Flasks individually packed in illustrated cartons.

USE STRIKING DISPLAY UNITS SUPPLIED FREE WITH ALL MODELS

NEW 'STRIPES' MASTER

(Model V.M.S. Capacity 16 fluid oz.)

Striking and modern in three wonderfully contrasting colour combinations; White Stripes standing out against Cherry Red, Cornflour Blue, and Emerald Green. With the 'SCREW-ON'.

Retail Price: 7/6 (Inc. P.T.)

THE MASTER

IN THE 'METALUSTRE' FINISH

(Model V.M.M. Capacity 16 fl. oz.) This model with the brilliant shining 'Car' finish—whose colours glint, glisten and catch the customer's eye. Assortment: Gunmetal Grey, Lustre Red and Turquoise Blue. Now also with the new 'SCREW-ON'.

Retail Price: 7/6 (Inc. P.T.)

BRIGHT STRIPES FOR GAY PICNICS

White horizontal stripes—set off by the most vivid of colour backgrounds—this is the VACCO 'Stripes' Master, an absolutely new MASTER Model. Undoubtedly the most eye-catching of all flasks. Assorted in three striking colour combinations: White Stripes on Cherry Red; White Stripes on Cornflour Blue; White Stripes on Emerald Green.

STOP PRESS:

Factory on overtime

The Vacco factory at Newhaven, Sussex has switched to overtime to cope with the demand for the 'SCREW-ON' range.

VACCO LIMITED, LONDON, S.W.1.

Owbridge's

LUNG TONIC AND PASTILLES

REVISED PRICES

As from July 1st, 1957,
the prices of these products will
be revised as shown on right.

These alterations are made
necessary by the continued rise
in the costs of production.

Full details of Wholesale terms
are shown in our new price list.

LUNG TONIC			
SMALL	RETAIL	PER DOZ.	30% P.T.
MEDIUM	3/6	£1. 5. 5.	7/7½
LARGE	5/-	£1. 16. 5.	10/11

PASTILLES			
TUBES	1/2	8/6	2/6½

W. T. OWBRIDGE LTD · OSBORNE STREET · HULL · TELEPHONE: HULL 15180

More sales — bigger profits — if you sell . . .

Bring SUNSHINE into your home

DOCTORS PRESCRIBE vitaminising ultra-violet and deeply penetrating infra-red rays.

FOR THE OLD to relieve pains, particularly Rheumatic, Sciatic and similar conditions.

FOR THE YOUNG to help their bones to grow, through the anti-ricket Vitamin D.

BRITISH MADE. GUARANTEED FOR 12 MONTHS.

ACTINEA
the Portable Sun

£12.12.0
(Easy Terms Available)

From Chemists, Hairdressers and Electrical Dealers (on prescription)



BUILD sales leadership with PERIHEL and increase your turnover.

WE are pleased to advise you that as a result of the increase in the sales of our Actinea Ultra Violet/Infra Red Sun Lamps, we have been able to reorganise our production in such a way as to enable us to produce these appliances very much more economically than in the past.

Retail price now £12.12.0

We are convinced that as a result of this lower price our trade customers will be able to double their sales in the coming season, and in order to support them in this endeavour we have made adequate provisions for large scale national advertising, and local dealer advertising on a 50/50 basis.

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Tel: LANGham 2411-2-3

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A product, of particularly good appearance, meets the requirements of all pharmacopoeias.

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Atropine alkaloid and salts of atropine, of natural and synthetic origin.

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Synonym for Sodium Tauroglycocholate B.P.C.; quality powder prepared from Ox Bile.

CASCARA

Official preparations of Cascara Sagrada including Dry Extract B.P., granular; for tabletting.

CHRYSOROBIN

Chrysobin B.P.C. 1949 now available for prompt delivery; quotations on request.

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OF EDINBURGH**

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SWEDEN

*"The Lord of us all is the dreamer
whose dreams come true"*

As THE ALCHEMIST looked into the future could he have dreamt of what science has accomplished and is accomplishing? Could he have foreseen medical science conquering all diseases?

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variable, there is something to suit most needs.**



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product bears
this Trade
Mark.

Other articles from our range of Polythene containers
include bottles and jars from 5 c.c. to 13 gallon
capacity.

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The name that guarantees accuracy

A red and white advertisement featuring the word 'ZEAL' in large, bold, white letters on a red background. A stylized 'Z' logo is integrated into the letter 'E'. To the right of 'ZEAL' is the text 'BRITISH MADE'. Below the main title are two clinical thermometers, one black and one silver, angled diagonally across a white triangular shape on a red background. Below the thermometers, the word 'CLINICALS' is written in large, bold, white letters. The entire graphic is set against a white background.

- CLINICAL THERMOMETERS
- HOUSEHOLD THERMOMETERS
- INDUSTRIAL THERMOMETERS

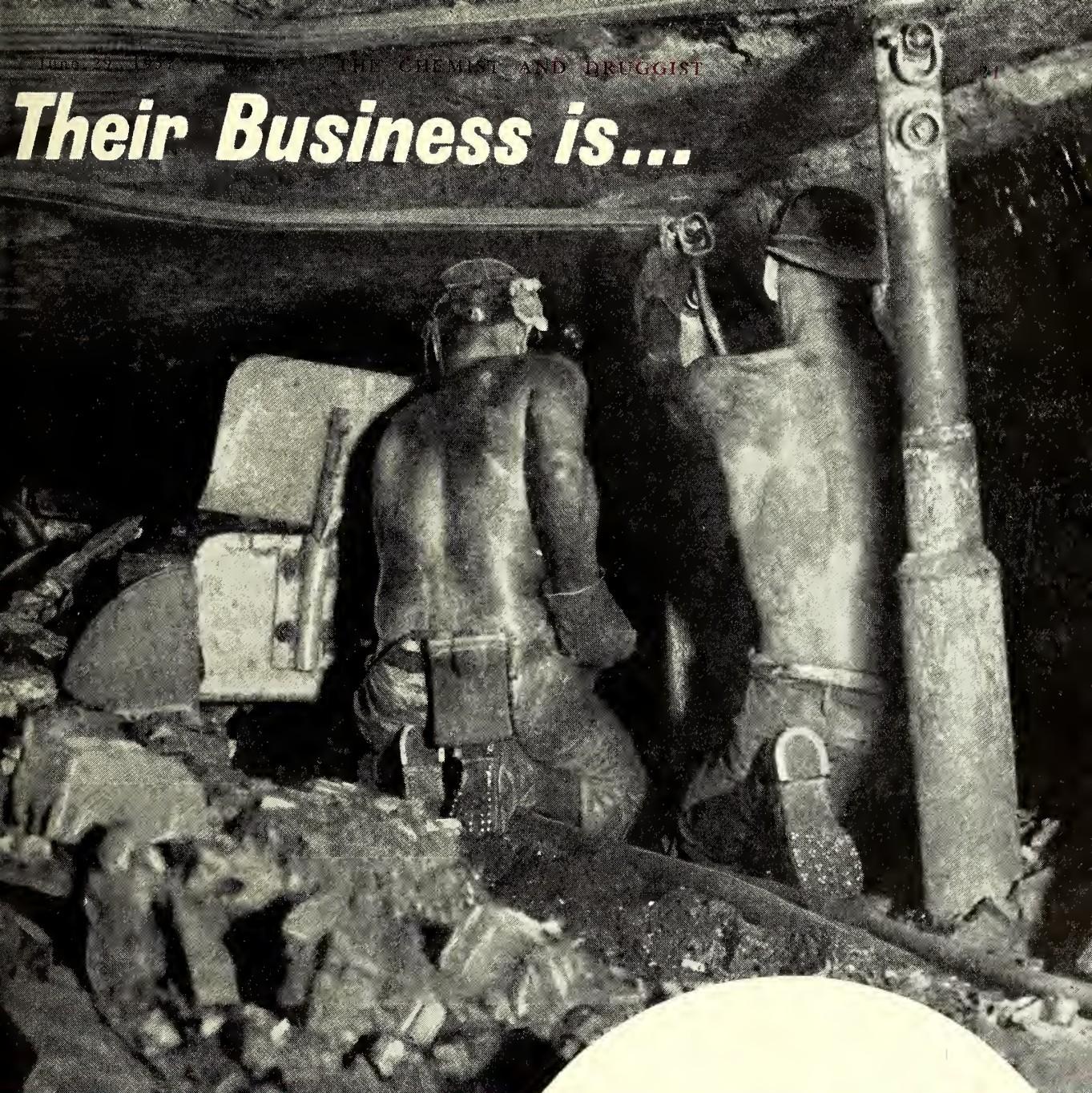
G. H. ZEAL LTD

LOMBARD ROAD, MORDEN ROAD, LONDON, S.W.19

Telephone: LIBERTY 2283-4-5-6 & 4201

Cables: "ZEALDOM" LONDON

Their Business is...



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TABLETS

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Eye Ointments · Soft Glycerine Lozenges
Packed Pharmaceuticals · Sterile Products

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MATERIALS
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HOME AND
EXPORT ENQUIRIES
INVITED

KIRBY OF LONDON

Pharmaceutical
Manufacturers

unhappiness
embarrassment
insecurity

the cruel companions of acne

Eskamel for acne

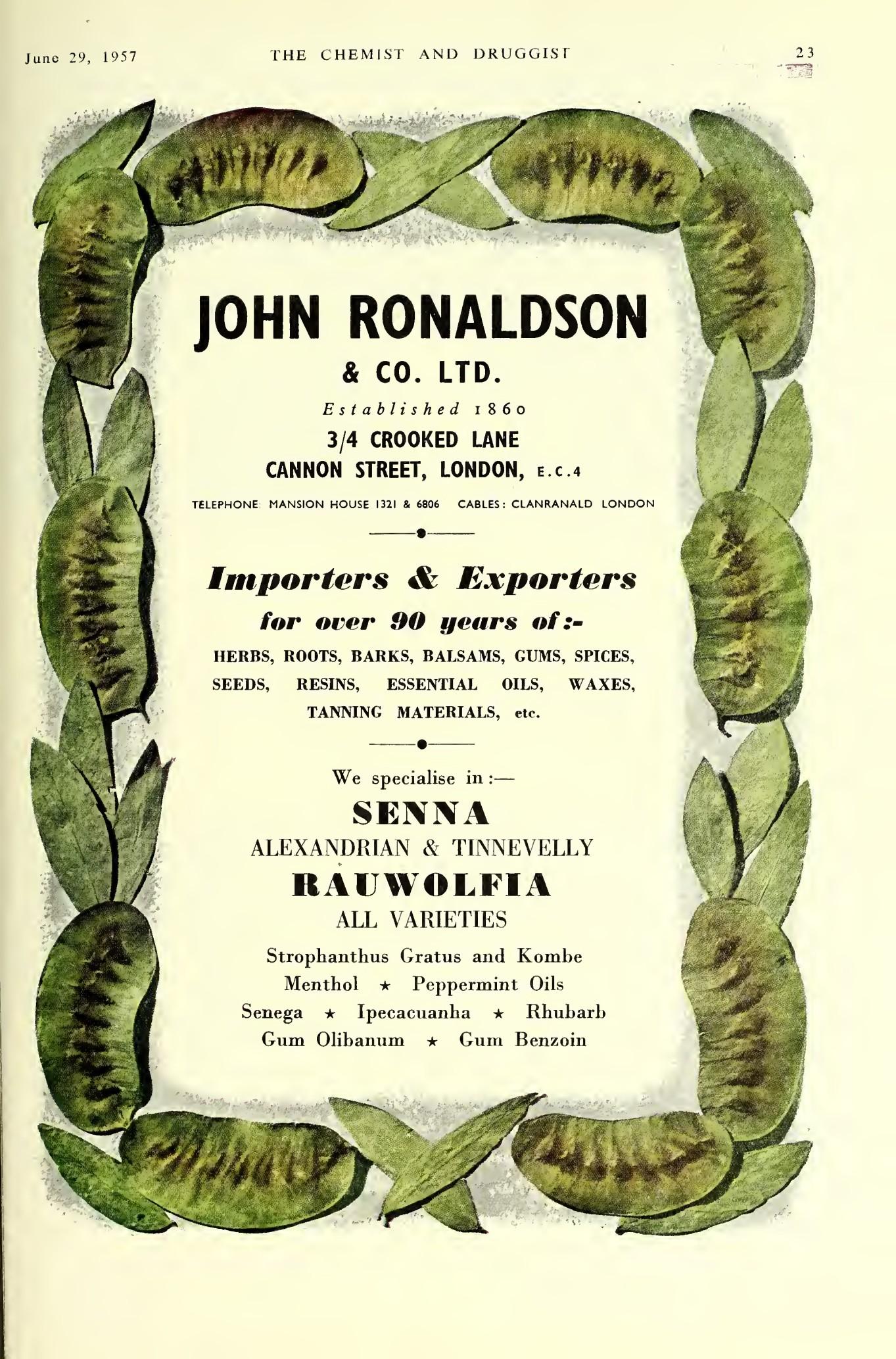


ESKAMEL—sulphur and resorcinol in a grease-free, flesh-tinted base—brings rapid improvement in acne, often in a few days. 'Eskamel' is virtually invisible when applied—and masks unsightly acne lesions.

Smith Kline & French Laboratories Ltd., Coldharbour Lane, London SE5

'Eskamel' is a trade mark

EM: TA77 (col)



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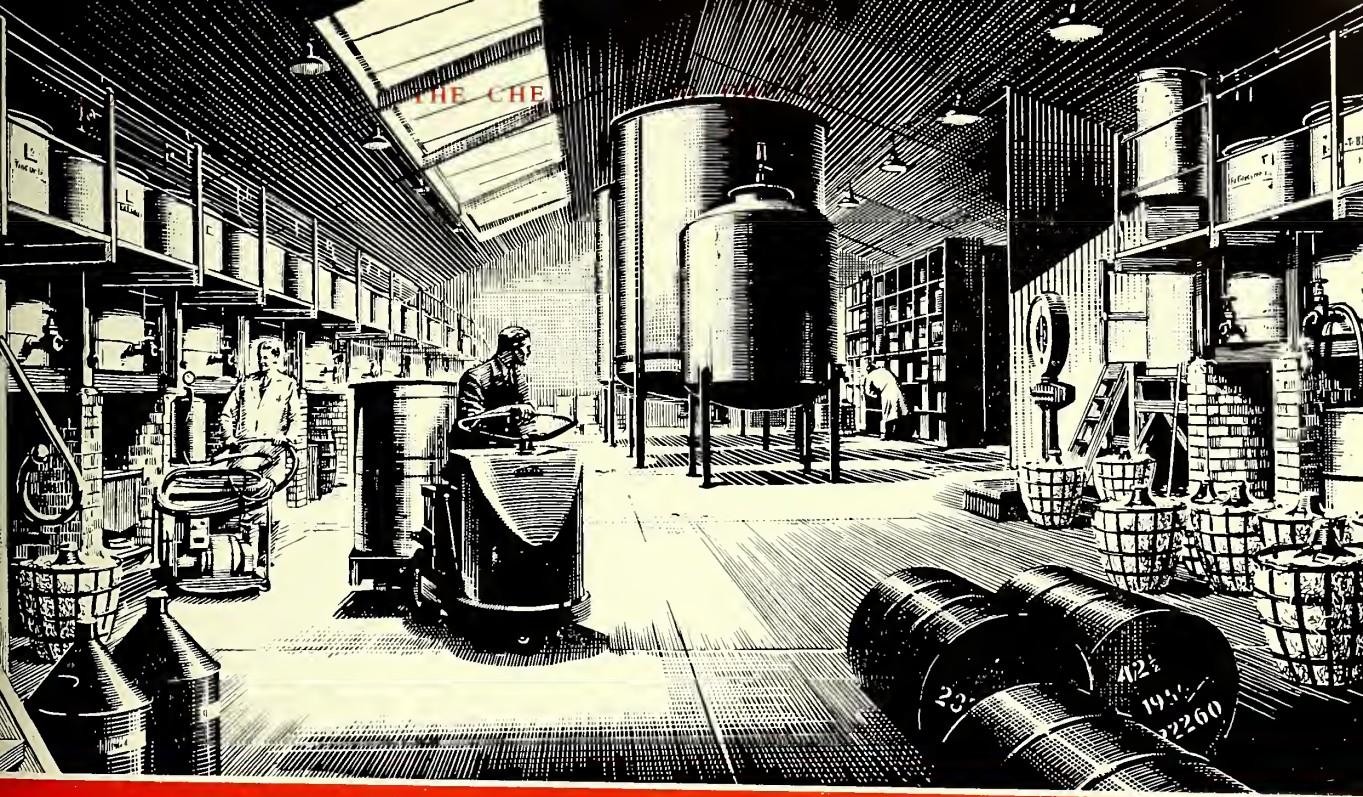
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Our Perfumery Laboratory manufactures a wide range of perfume essences for use in alcohol, creams, lotions, powders, etc., etc. In addition there are full ranges of Soap Compounds specially formulated for this industry. ROSE • JASMIN • UGUET • LAVENDER • PINE, etc., etc. Isolates:—JENOL • GERANIOLS • RHODINOLS • EUCA-YPTOL • CITRALS, etc., etc.

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Our English-distilled and imported oils have for generations been accepted as the standard of purity both at home and overseas. CLOVE • PEPPERMINT • LAVENDER • ALMOND • CHAMOMILE • DILL • ORRIS • PATCHOULI • NUTMEG • SANDALWOOD • CORIANDER • CASCARILLA, etc.

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We have been leading millers of natural gums for well over a century. Samples and advice on all questions of mucilage, emulsification and suspension will gladly be sent on request.

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Our specialities, as leading manufacturers of preparations for the control of insect pests, include:—PYRETHRUM EXTRACTS AND POWDERS • ROTENEX • DERRIS EXTRACTS AND PREPARATIONS • PYRETHRUM & D.D.T. COMPOUNDS



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*Factories at New Cross, Alperton, Harlow
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The newest corticosteroid—**DELTACORTRIL***—became freely available on February the first. The many published reports on this remarkable drug suggest that it is **THE MOST POTENT AND THE SAFEST CORTICOSTEROID** yet developed. To permit the very precise dosage needed with Deltacortril two strengths have been made available: scored tablets containing 5 mg. prednisolone, and tablets containing 1 mg. prednisolone.

Also generally available is **DELTALGYCORTRIL***, a combination of Deltacortril and acetylsalicylic acid. Trials have shown that it **HAS GREAT VALUE IN THE EARLY STAGES OF RHEUMATOID ARTHRITIS**.

The maximum response is obtained with the minimum dose of the corticosteroid, while patients who react unfavourably to large doses of salicylates, when used alone, can often be adequately maintained with this extremely safe combination. Each tablet contains 0.5 mg. prednisolone and 5 grains acetylsalicylic acid. Trade Prices: Bottles of 100 £1/2/7, plus 30% P.T.

Pfizer PFIZER LTD. · FOLKESTONE · KENT

* Trade Mark of Chas. Pfizer & Co., Inc.



Complimentary colours!



The moment French of London introduced his French Accent Solid

it was acclaimed top hairdressing news by a score of beauty editors. And with good reason!

Not a dye, not a rinse, this new colour-streak is as easy to use as lipstick!

No wonder women who read about it tried it—loved it—and wanted more.

Order French Accent Solid in three famous shades;

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Hold everything!



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Plastics Group

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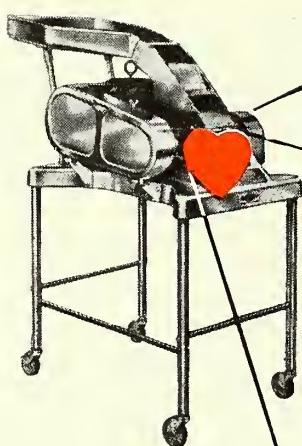


Wonderful Poly-Tainers, polythene bottles—unbreakable, leak-proof and light-weight give instant 'eye appeal' to your product and rocket your sales. Conventional shapes supplied from stock or containers can be individually designed to suit your requirements.

Dispenser attachments to spray, drop, puff or pour your product are available with all Poly-Tainers. Printing is our speciality. Make sure the brand name is genuine 'Poly-Tainer' —it costs no more!

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**UNIVERSAL ALL-PURPOSE
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The Blades do it!

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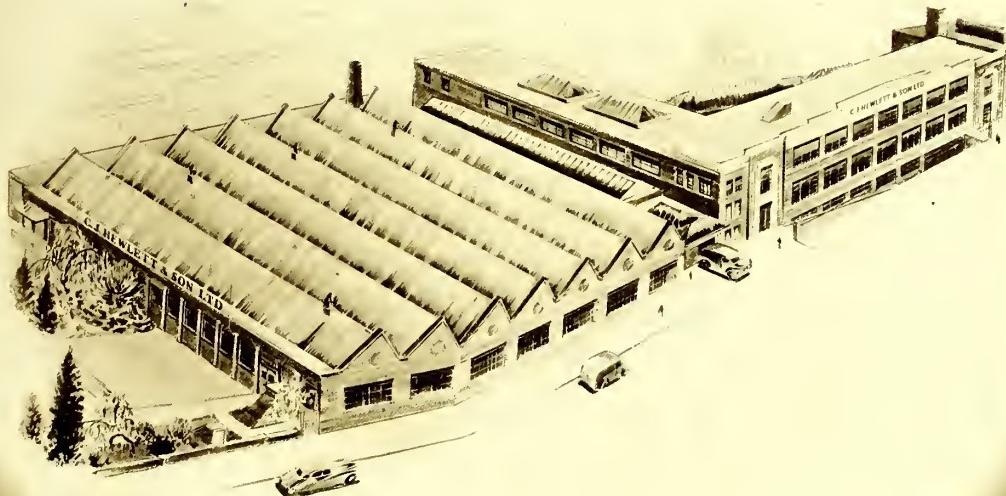
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Heat-sealed,
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We specialise in Chemists "own name" packs, and
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ENSURES WIDER RANGE OF CONTROL IN ALLERGIC DISORDERS

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Subject to a discount of 33½% to retail pharmacists. Exempt Purchase Tax

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PARTICULARLY VALUABLE IN ALLERGIC SKIN DISORDERS WHERE PRURITUS IS SEVERE

Tubes of 1 oz. (3s. 6d.). Jars of 1 lb. (42s. od.). *Subject to a discount of 33½% to retail pharmacists. Exempt Purchase Tax*

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Refill this No. R4 Cabinet for 83% Profit.

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PROFIT ON CABINET	PROFIT ON REFILLS (Based on one set)
No.R3 or R3B Acetate 52%	69½%
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No.R5 or R5B Nylon 51%	56%
No.R7 Blk. and Shell 50% Nylon	55%
No.R18 or R18B Super 61½% Acetate	70%

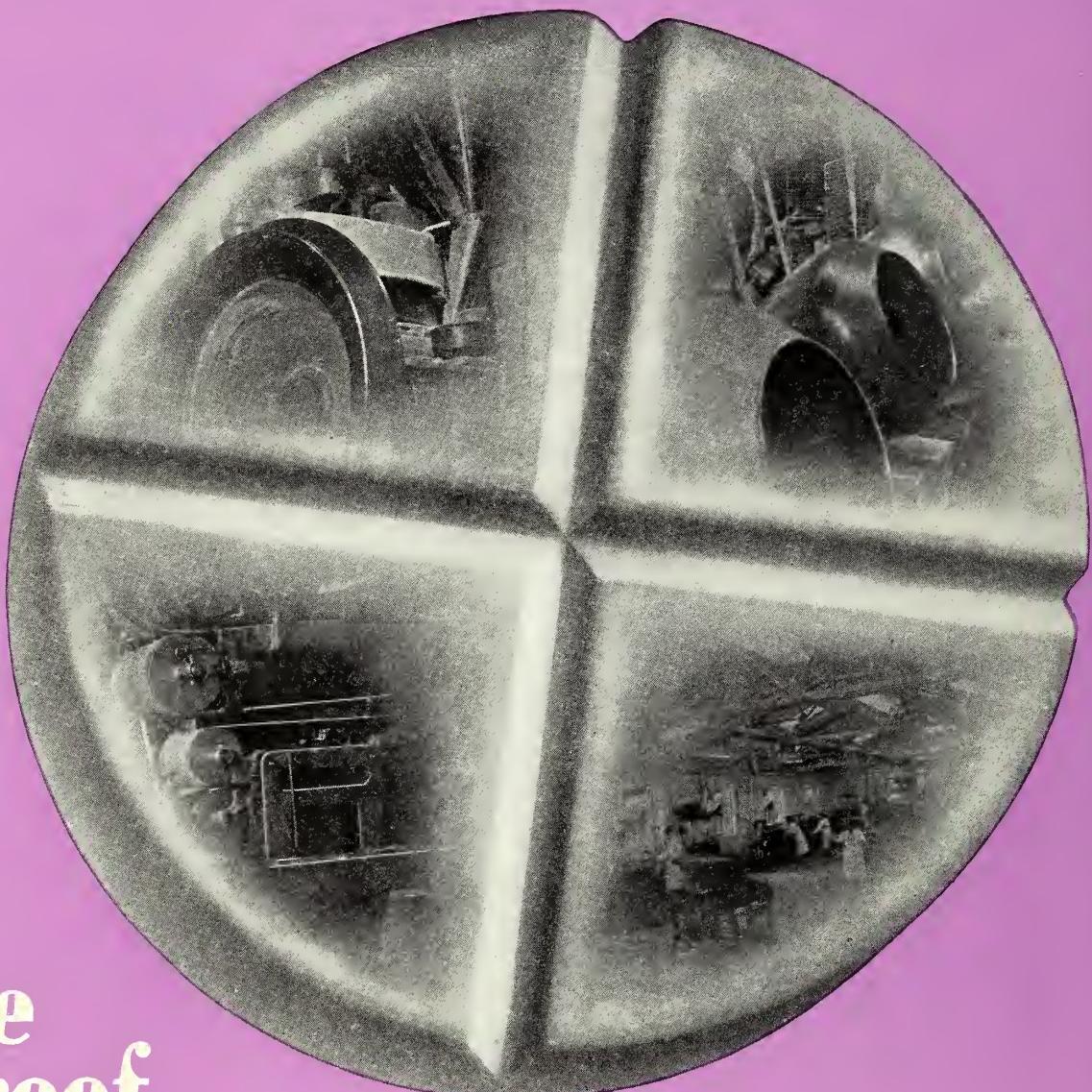
In every case far higher than any
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With these large scale facilities therefore, the Cox Organisation is in a position to handle orders of all descriptions and in any quantity. A service of this nature, of course, is particularly advantageous to the buyer of bulk tablets, pastilles and other pharmaceuticals, but for counter sales the Private Brand Division is equipped for designing labels, wrappers and cartons, based on a customer's existing requirements and colour scheme or for the creation of an entirely new pack ready for the counter.



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One of the world's foremost tablet makers

It's crystal clear . . .

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**£12
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Unit of two vertical cases and one sloping case. Price per set £12. 0. 0. (Vertical showcase 24" high, 18" wide, 12" deep. Price £4. 5. 0. Sloping showcase 14" high, 36" wide, 12" deep. Price £4. 5. 0. You save 15/- on 3 cases.) Vertical and sloping cases packed separately. All prices carriage paid in Gt. Britain. All packages FREE of charge and NON-returnable.

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LOOK INTO IT TODAY—EQUIP YOUR SHOP THE MODERN WAY! Send immediately for fully illustrated leaflet of Martin Display Cases and prices.

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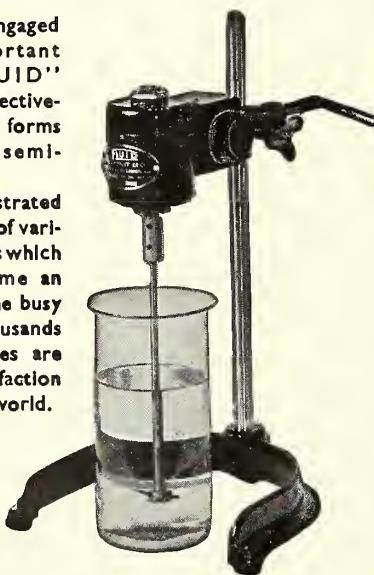
Post to: MARTIN DISPLAY (Dept. CD), 52 Market St., Watford, Herts. Tel: Watford 9287

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for the busy pharmacist

While you are engaged on more important matters "FLUID" STIRRERS will effectively stir and mix all forms of liquid and semi-liquid.

The machine illustrated is one of a range of variable-speed models which have now become an ESSENTIAL to the busy Pharmacist. Thousands of these machines are now giving satisfaction throughout the world.



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DIAGNOSTIC SET

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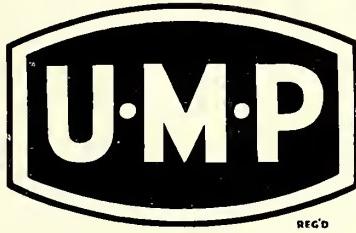
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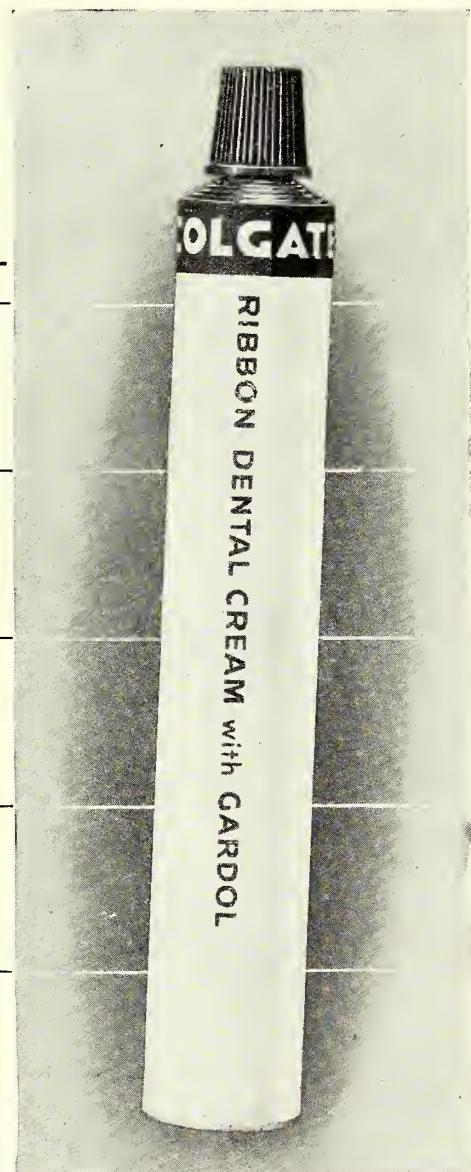


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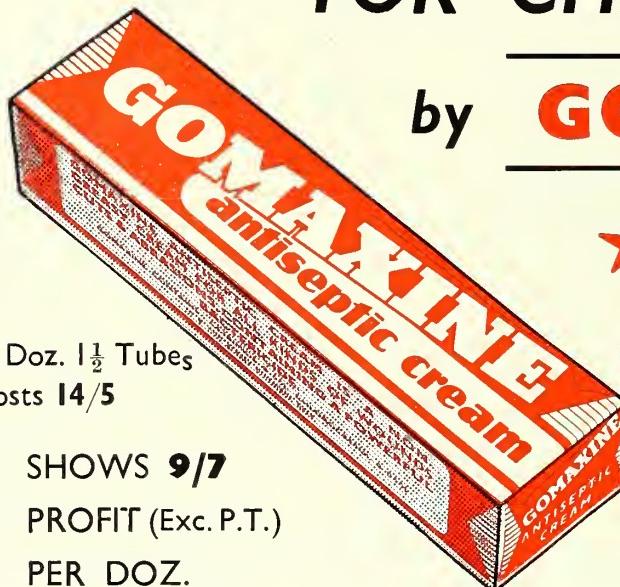
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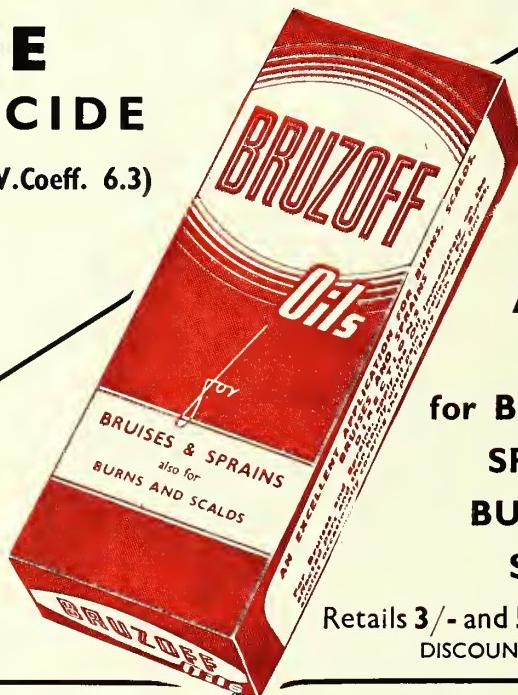
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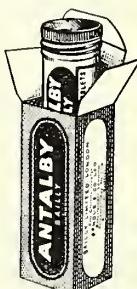
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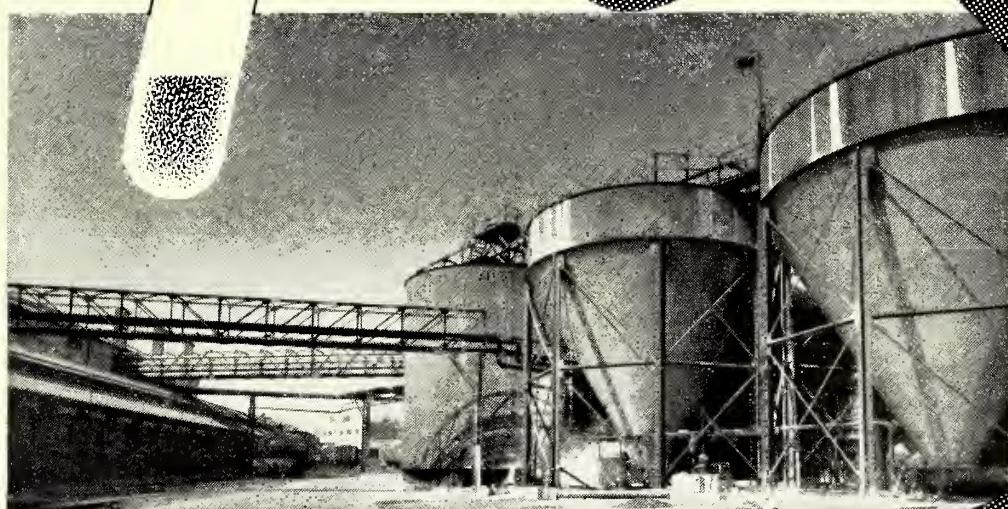


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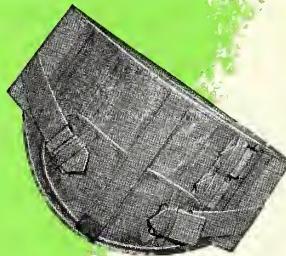
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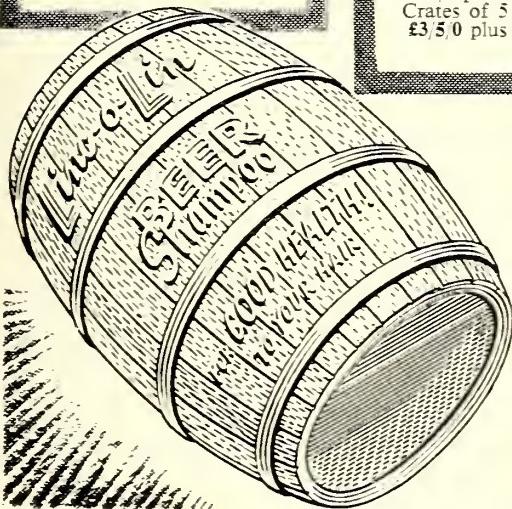
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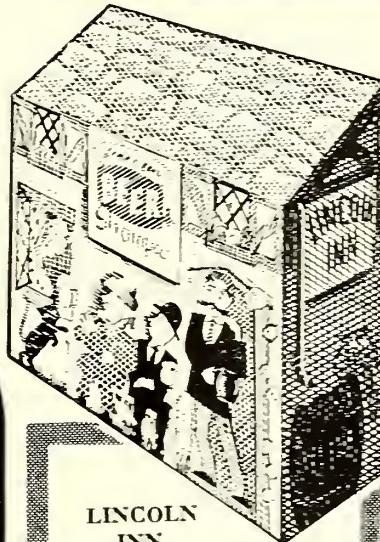
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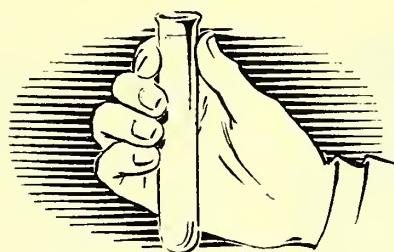


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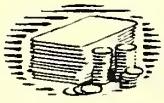
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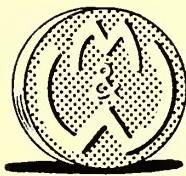
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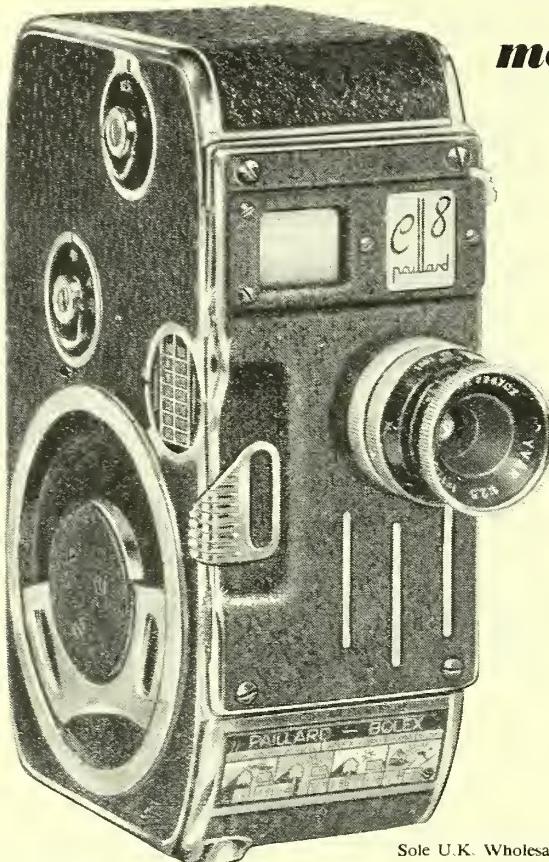


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1. Beckmann's *History of Inventions*, IV 529, 1814.
2. Goodrich, H.P. & Way, G.L., 1940, *British Medical Journal*, 769.
3. *Chemist & Druggist*, 1947, No. 3510, 629.
4. *Pharmaceutical Recipe Book*, American Pharmaceutical Association, 1932.

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Since
1893

Importers and Exporters
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and other Raw Products
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Pharmaceutical, Food,
Confectionery, Perfumery
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BOTANICAL CRUDE DRUGS
(Balsams, Cinchona and other barks, leaves, roots, seeds, etc.)
CAMPHOR, MENTHOL & PAPAIN
GUMS Acacia, Karaya and Tragacanth (whole and powdered)
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Varied stocks available in original packages.
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MYSSORE

Government Sandalwood Oil

Orders delivered
within twenty-four hours
if necessary.

For further information
apply to:—

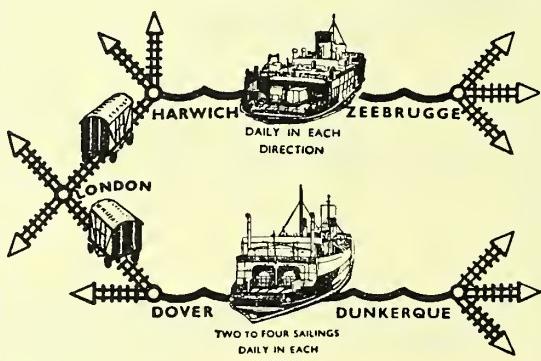
TRADE AGENT FOR MYSORE

28 Cockspur Street, London, S.W.1.

Tel: WHItehall 8334/5

'Grams: MYSOF, Lesquare, London.

MERCHANDISE
MAY BE FORWARDED
IN THROUGH WAGONS
BETWEEN
GREAT BRITAIN & THE CONTINENT
BY TRAIN FERRY
SAVES TIME • PACKING • HANDLING



Full particulars from Continental Superintendent, Victoria Station, London, S.W.1, for Dover route, and from Continental Traffic & Shipping Manager, Harwich House, 129 Bishopsgate, London, E.C.2, for Harwich route.

BRITISH RAILWAYS

**This is THE PACK for
YOUR dispensary**

SPECIAL PARCEL

12 BOXES OF SUPPOSITORIES SENT

POST FREE!

to your address and charged through YOUR USUAL WHOLESALER

E.G. 6 Boxes of Suppos. Bism. Subgall. 6 Boxes of Suppos. Bism. Subgall. Co.

Manufactured and Packed in the Laboratories of:

RICHARD DANIEL & SON LTD.

MANSFIELD ROAD, DERBY, Tel. 40671 (8 lines) and at GROSVENOR STREET, ASHTON-U-LYNE, Tel. 2816 (3 lines)



CHANDAU SHAMPOO

ONE box on your Counter—LANOLIN, LEMON CREAM, COCONUT, CHAMPAGNE, BEER and DANDRUFF. Packed 6 doz. in Display Carton (1 doz. of each type). For every texture of hair. Retail 6d. per sachet. Trade 40/- per gross plus Tax 30%. Refills available in individual 1 doz. packs of any one type.

CHANDAU BUBBLE BATH

Retails at only 6d. per sachet. Trade 40/- per gross plus Tax. Packed 3 doz. in a box with show-card. Immediate sales.

Order direct or from your usual Wholesaler.

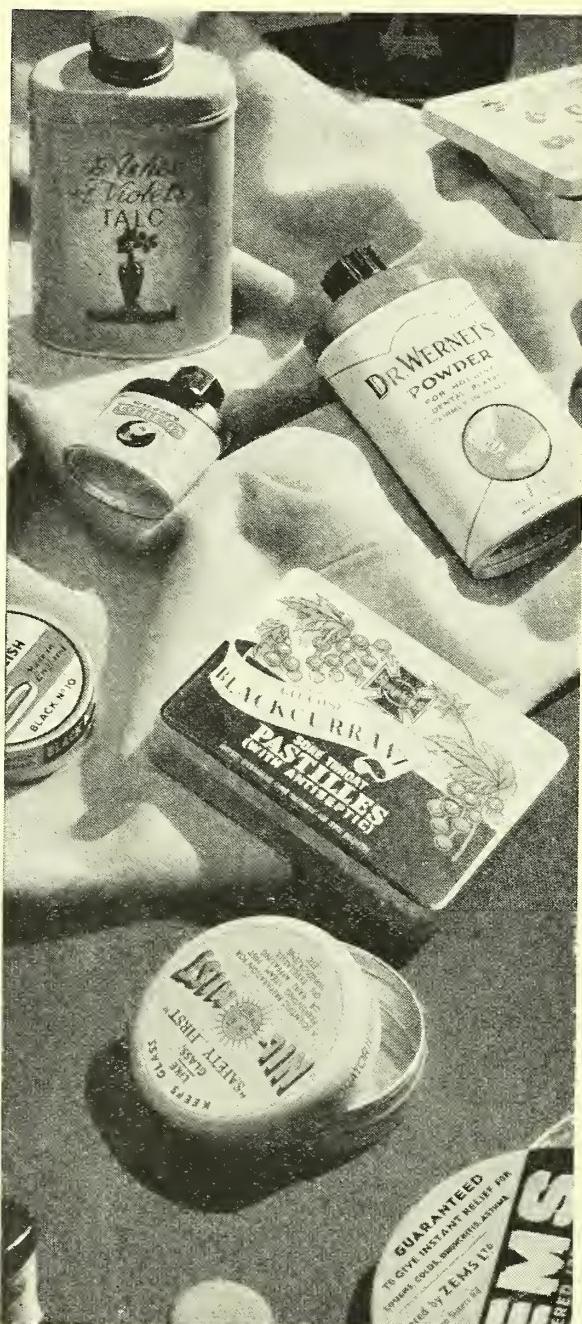
We too are amazed!

—at the overwhelming demand for these two NEW products. Our apologies to the Trade for any delay in the execution of orders. Please order early!

Two
QUICK-SALE
profit makers



T. L. BENTON & CO. LTD. 186 Seven Sisters Road, London, N.7. Tel. ARChway 2674.



PRESSWORK, TINS, CANISTERS
DECORATED METAL BOXES
CONTAINERS OF ALL KINDS
DRUMS AND KEGS



MODERN PACKAGES
LIMITED

PHOENIX WORKS

UXBRIDGE 8535-6-7-8

Your own proprietary lines manufactured and packed in AUSTRALIA

Australia's high standard of living makes it a rich market for proprietary lines — chemists' lines, cosmetics, groceries, horticultural and veterinary products etc. To avoid difficult import restrictions, and freight and insurance costs, many manufacturers are now having their goods prepared and packed in Australia.

Since 1888

Simpson's Manufacturing Pty. Ltd., of Melbourne, Victoria

and Sydney, New South Wales, has been producing articles of this kind since 1888. They now list over a thousand clients from all parts of the world. Clients' specifications are faithfully followed and utter secrecy is observed. Distribution, marketing and advertising facilities in all states are available if required.

Further details and quotations will be gladly given without obligation.

SIMPSONS
SINCE 1888

Barkly Avenue, Burnley, Melbourne, E.1., Victoria, Australia.

THE "FILLMASTER"

TRADE MARK

AMPOULE, BOTTLE AND VIAL FILLING MACHINE

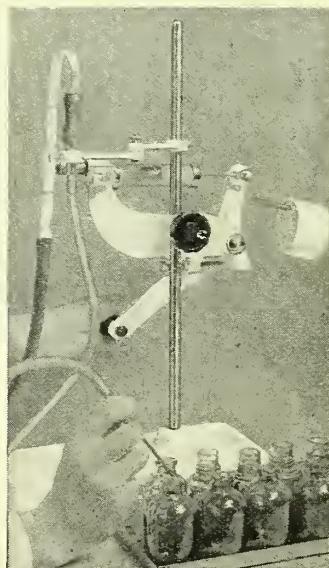
and accessories:

CAP-FILL
twin-needle filling stem

TRAY-FILL
mobile filling stem
(shown here)

AID-FILL
auto-centring
filling stem

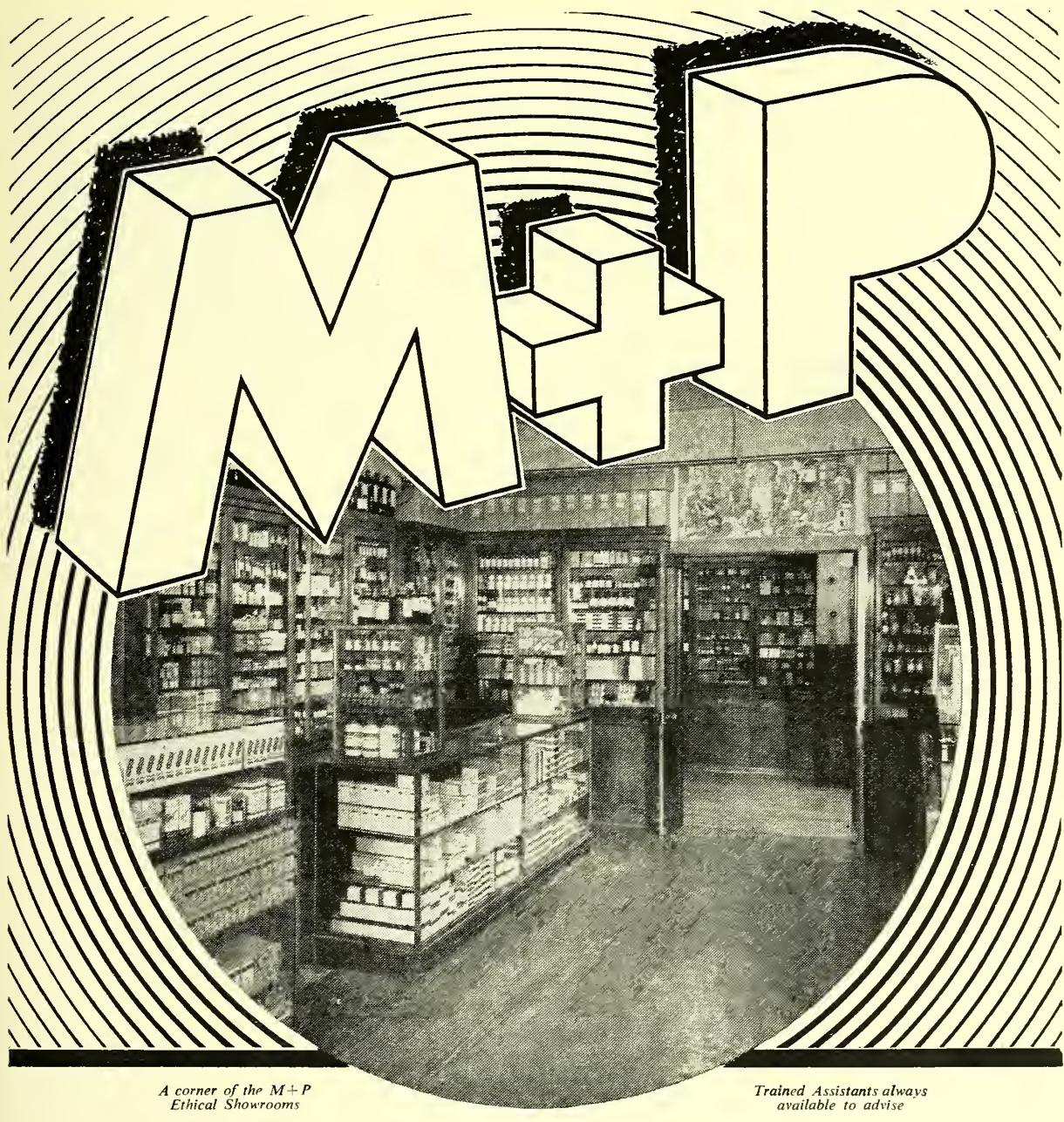
SIMPLE
PORTABLE
HAND-
OPERATED
LOW-PRICED
PRECISION-
BUILT
DRIPLESS
FILLING
of



pharmaceuticals, perfumes, inks, etc., into containers of capacity of $\frac{1}{2}$ c.c. to 100 c.c. at the rate of up to 1,000 per hour.

ACCURATE DOSAGE

MARK-O-PRINT LIMITED
STATION PATH, PUTNEY BRIDGE STATION,
FULHAM, LONDON, S.W.6 Telephone: RENown 4135



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Trained Assistants always available to advise

The Centre for Ethicals in the North-East

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MAWSON & PROCTOR PHARMACEUTICALS LIMITED

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Telephone: 29751/7 (8 lines)

LION 9 SALES AHEAD

Non-stop sales of these super quality hair nets in 15 denier nylon prove the amazing demand for an invisible hair net of more than usual strength.

LION 9 nylon hair nets are available in all hair shades.



LION 9 NYLON HAIR NET ADVERTISEMENTS
are read by over
6 MILLION WOMEN
every month.



From your wholesaler or write for address of nearest stockist.

ROBERT SHAW & CO. LTD

ASCOT ROAD, NOTTINGHAM. Tel: NOTTINGHAM 71231/2

London Office: Condor House, St. Paul's Churchyard, E.C.4. Tel: CITY 3359

Makers of Quality Hair Nets since 1905

Packed singly in film envelopes and displayed on hanging cards or in counter cartons.

Zoflora is now in continuous demand—display it on your counter

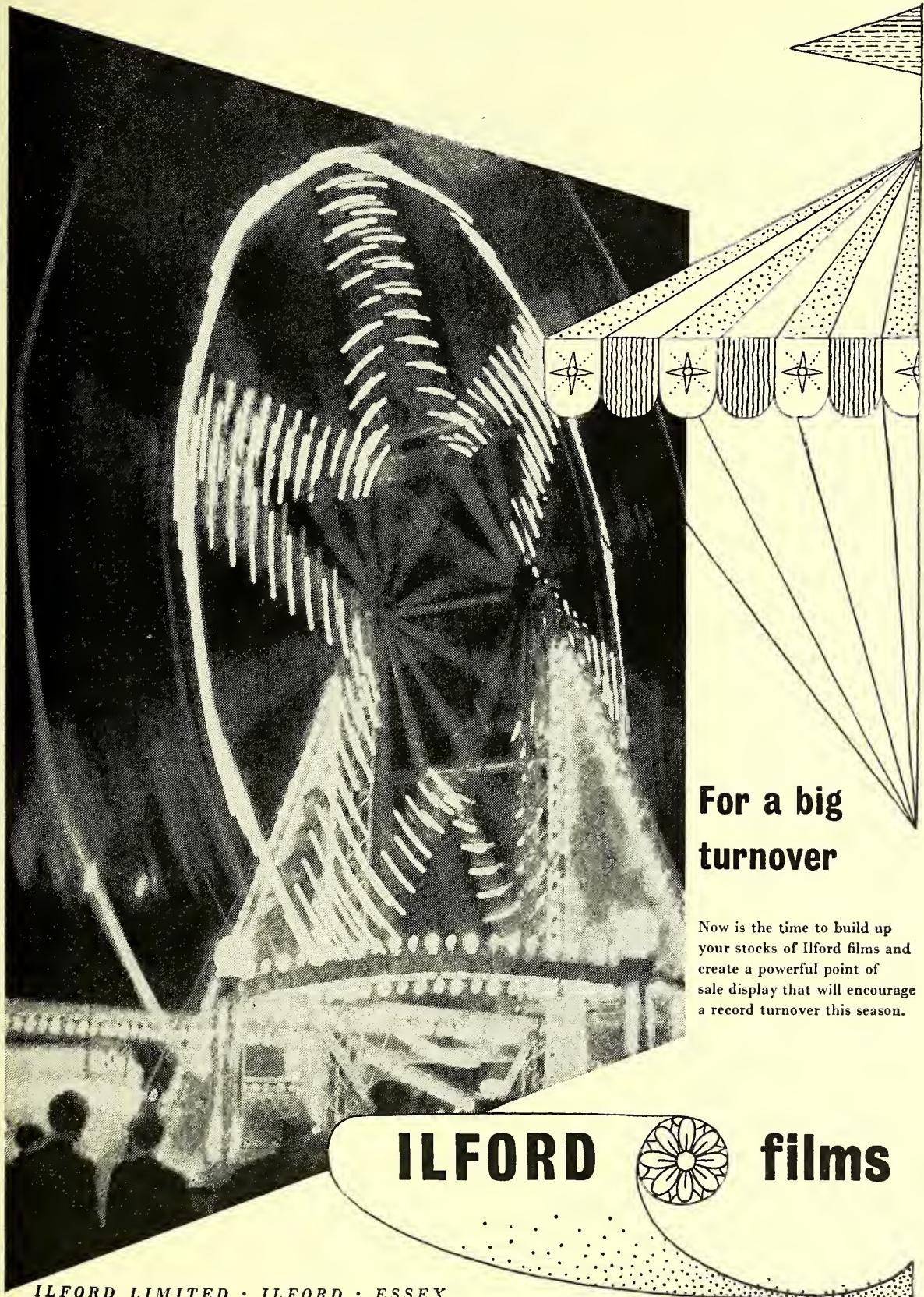
Zoflora is now being nationally advertised in the foremost woman's magazines and large advertisements are appearing in the provincial press. Why not take advantage and stock up right away. Zoflora sells itself and ensures repeat sales.

Zoflora floral DISINFECTANT

TZ 68.



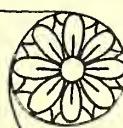
THORNTON & ROSS
LIMITED
LINTHWAITE LABORATORIES
HUDDERSFIELD
ENGLAND

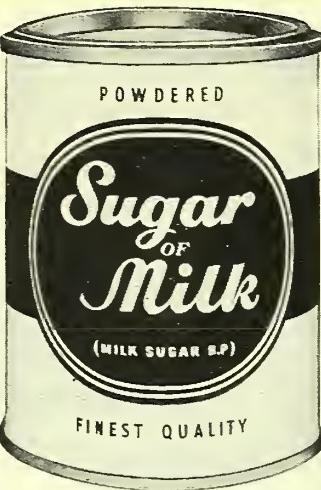
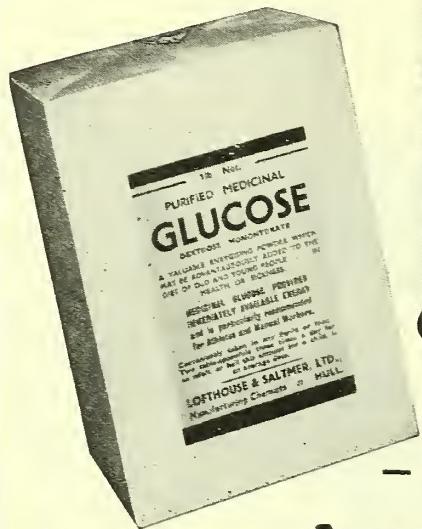


**For a big
turnover**

Now is the time to build up your stocks of Ilford films and create a powerful point of sale display that will encourage a record turnover this season.

ILFORD films





*Tablets, Pills
or Packed Goods*

IN FACT

Everything for the Chemist

SEND YOUR ENQUIRIES TO

LOFTHOUSE & SALTMER, LTD., MANUFACTURING CHEMISTS, HULL

The Best costs no more!

when ordering ZINC OXIDE
insist on —



AND GET THE
Highest Standard of Purity

WHOLESAVERS ONLY SUPPLIED
ENGLISH MANUFACTURE
USED THROUGHOUT THE WORLD

Guaranteed free from lead and arsenic. Its manufacture is supervised throughout by qualified chemists. Each particle size will pass 240 mesh with less than 0.1% residue.

We supply most Wholesalers, but should you have difficulty please contact

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BLACKFRIARS, LONDON SE1

Telephone: WATERLOO 5800

Manufactured by FELLING ZINC OXIDE CO., LTD.

LAPORTE FINE CHEMICALS

HYDROGEN PEROXIDE

BENZOYL PEROXIDE
ORGANIC PEROXY COMPOUNDS
MAGNESIUM PEROXIDE
ZINC PEROXIDE
UREA HYDROGEN PEROXIDE
SODIUM PERBORATE
SODIUM PERCARBONATE
PERSULPHATES
TITANIUM DIOXIDE
BARIUM SULPHATE B.P.
SODIUM LAURYL SULPHATE
EMULSIFYING WAXES



LAPORTE

Laporte Chemicals Ltd., Luton.
Tel.: Luton 4390.
Cables: Laporte, Luton.

TRESS advertising reaches the YOUNGER WOMAN'S market with advertising that convinces!

Proof that a Tress Set stays in much longer!

This photograph shows the remarkable result of a simple test on a growing-out perm. After shampooing, the girl's hair was left damp. The left side was sprinkled with Tress and set in pin curls.

No Tress was put on the right side, but it was set in a similar way to the left. After drying, the pins were removed and the hair combed through and arranged.

As you can see, the left side looks almost as though she has had a new perm. The hair has gained new life, new curling strength and stability.

On the right side, the curls and waves have barely survived the comb-through. The hair is straggly, fly-away.

Here is proof that Tress is excitingly different—that it contains complete new types of hair nutrients, which improve the hair's curling power.

Whatever your type of hair—coarse or fine, dry or normal, over-permed or tangly, Tress will make them all easier to set. Tress takes out all tangles, too, and when you comb, deep-slepping waves and eager-forming curly corners

TRESS sets, curls and conditions your hair
By L'ORÉAL, PARIS World's oldest and largest Makers of Hair Beauty

This advertisement featuring an actual test carried out with Tress is regularly appearing in:

**DAILY MIRROR
SUNDAY EXPRESS
WOMAN
WOMAN'S OWN
SUNDAY PICTORIAL**
and many other
big circulation media
*-reaching the younger woman
with the spending power!*



TRESS now available in large and small sized packs, is already one of the biggest selling wave sets. Constant advertising is opening the way to a wider market yet! The young woman of today has money to spend, and Tress is just the hair beauty product to appeal to her sense of good value.

TRADE TERMS

Small Size

Price

8/10

per dozen bottles

plus 90% tax

selling at **1/9** per bottle

*

Large Size

Price

14/5

per dozen bottles

plus 90% tax

selling at **2/10½** per bottle

GOLDEN LIMITED · 7 Grosvenor Street · London · W.1. HYDe Park 1671

Trade Enquiries for the Republic of Ireland should be addressed to : Lilmar Pharmaceuticals Ltd., Santry, Dublin



To a supremely successful product we've added the irresistible appeal of colour—a choice of five delightful colours to tempt the Eve in every woman. Make sure of record sales by placing your order now!

Pack restyled too! The attractive presentation box now has a gold platform . . . a luxury background to enhance the range of five enchanting colours.

retails at 76/9 inc. tax.

Now...

the famous PIFCO hairdryer
in these

ENCHANTING COLOURS

- ▶ petal pink
- ▶ maple green
- ▶ pastel blue
- ▶ lilac
- ▶ ivory



Good Housekeeping
Seal of Approval.
12 months' guarantee.

again- **PIFCO** take the lead in sales appeal!

Order from your usual wholesaler
Details of complete Pifco range from PIFCO LTD., Watling Street, Manchester 4, and 36-37 Upper Thames Street, London, F.C.4.

We are actual manufacturers
and can offer prompt delivery of, and keenest prices for:—

**SODIUM METABISULPHITE
SODIUM HYPOSULPHITE**

(CRYSTALS and ANHYDROUS)

SODIUM SULPHITE

(CRYSTALS and ANHYDROUS)

B.P. EPSOM SALTS

B.P. PRECIPITATED SULPHUR
ACCUMULATOR ACID · ZINC CHLORIDE
(TECHNICAL)

B.P. ZINC SULPHATE · B.P. GLAUBER SALTS.

JOHN RILEY & SONS LTD.

CHEMICAL MANUFACTURERS

Grams: RILEYS, HAPTON HAPTON near BURNLEY Phone PADIHAM 290/291

We invite
your enquiries.
Samples and
prices gladly
sent on request.
List of Technical
Products on
application.

Not just luck—their
'married happiness'

Not just by chance, these happy, healthy, carefree faces. To those who have learned the sound and sensible rules of planning a family, such is the nature of things. So, too, is the economic security and full satisfying life enjoyed by thousands of couples for the last sixty years. They have found the only 'best plan' . . . so simple, so very simple with

Rendells

Sold by chemists everywhere, and made by W. J. Rendell Ltd., Hitchin, Herts, who will be pleased to send full explanatory literature in a plain envelope, on request.

PRESCRIPTION FORM

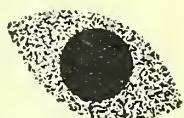
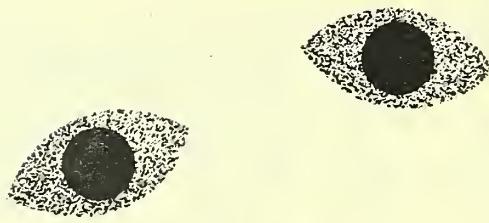
When ordering Rendells you may find it convenient to use this Prescription Form. Simply cut it out and hand it to your chemist.
Please supply 1 box of Rendells (price 3/6)

The Rendell story—re-told 14 million times!

Here is your preview of the Rendell advertising message to be seen shortly by millions of couples in the national and provincial press—just one of a powerful series appearing regularly. Rendells dispensers are the 'clinchers' which will convert this publicity into sales. Let us send you our latest display material. You can be sure of its ethical approach. Make sure you send for it *today*, to :—

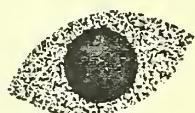
W. J. Rendell Limited, Hitchin, Herts

If a customer hands you a prescription form from one of these advertisements, please supply our literature as well.



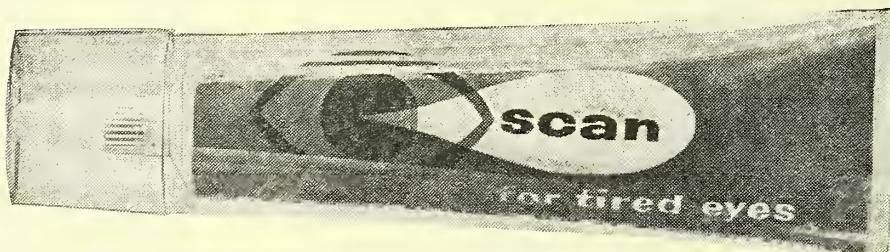
The new **scan** sales promotion begins

September 8



In the big-circulation Daily Express . . . millions will read the 'gentle as a tear' Scan story in a concentrated campaign starting September 8.

In London, the evening newspapers will carry Scan advertisements and millions of London TV viewers will see Scan gently soothing and refreshing tired eyes.



SCAN HAS NEW SALES APPEAL ON THE COUNTER

The 'use anywhere, anytime' Scan dropper control tube has been redesigned with new eye appeal, new sales appeal. And there's a bright new counter display outer to match.

The Cash Details?

Retail price per tube . . . 2/- (inc. purchase tax)
Trade price per dozen . . . 13/6 (P.T. 30%)
. . . which adds up to 32.66% return,
or £3.18.7 on every gross.

Order from your usual wholesaler NOW!

Scan is now a C.F. line

scan
for
tired
eyes



NOW is the time to make a window display of *D' Scholl's* FOOT AIDS



NEW WINDOW DISPLAY for FOOT AIDS

Keep a Foot Comfort Section in the Pharmacy and effortlessly multiply your sales. Discuss with our representative when he calls the new Dr. Scholl's window display material which so successfully increases sales of Foot Aids in Chemists.

Important Announcement

As from 1st July 1957

Mandelamine

TRADE MARK

AND Pyridium

TRADE MARK

Will be distributed by William R. Warner & Co. Ltd.

Packs and prices will continue unchanged and are:—

Sizes	Retail Price (each) inc. P.T.	Trade Price per doz.	Purchase Tax per doz.
Mandelamine Tablets 0.25 G. (3½ gr.)	7/10½d.	52/6d.	15/9d.
500	—	32/- ea.	9/7½d. ea.
1,000	—	60/- ea.	18/- ea.
Pyridium Tablets 0.1 g.m.	7/6d.	50/-	15/-
30	—	31/- ea.	9/4d. ea.
250	—	57/- ea.	17/1d. ea.
500	—	44/-	13/2½d.
25	6/7½d.	65/- ea.	19/6d. ea.
500	—		

Orders may be placed with any wholesaler or sent direct to Power Road, London, W.4.

Orders for any product, or combination of products (including Mandelamine and Pyridium) of a maximum net value of £5, exclusive of tax, are subject to a 5% discount.



WILLIAM R. WARNER & CO. LTD., LONDON and EASTLEIGH.

HAND/PYR 369/21

*Sutton's
is the
answer!*

when it means 'Service' to clients covering everything the modern pharmacist requires—except—
Bulk Drugs & D.D.A.

We are the *complete* wholesaler for
PRESCRIPTIVE PHARMACEUTICALS, PROPRIETARY MEDICINES, DRUGGISTS'
SUNDRIES, PROPRIETARY TOILETRIES, PACKED PHARMACEUTICALS.

ONE ACCOUNT. Our extensive stocks enable us to supply all your needs so eliminating broken accounts.

'PHONE SERVICE. We can 'phone you each day for your order in the Greater London Area, also in certain County districts by special arrangement, or our dependable operators are ready to receive your call during the day.

Manufacturers' initial stocks are received by us previous to trade announcements. We are thereby able to supply immediately.

We shall be pleased to supply you with our combined Order and Advice Note sets for your convenience when forwarding your instructions.

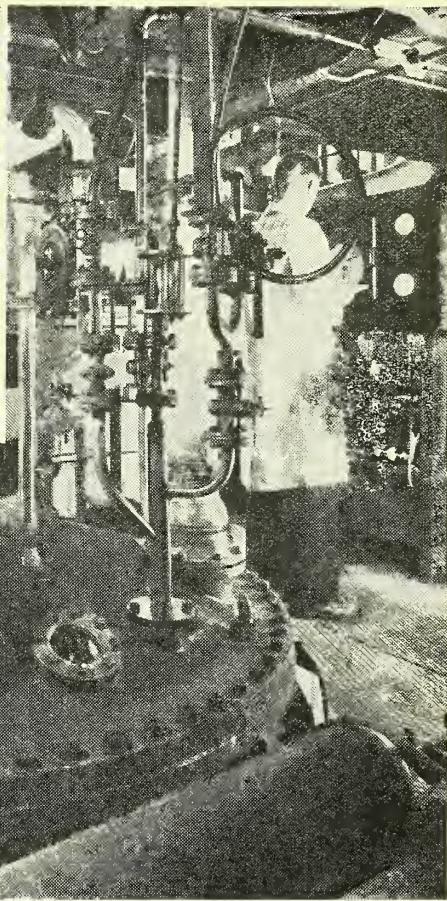
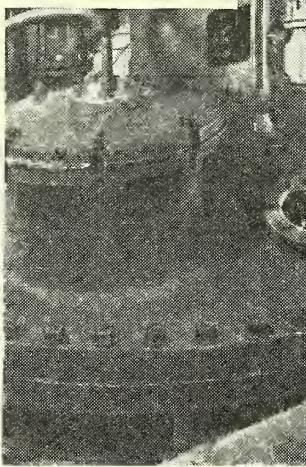
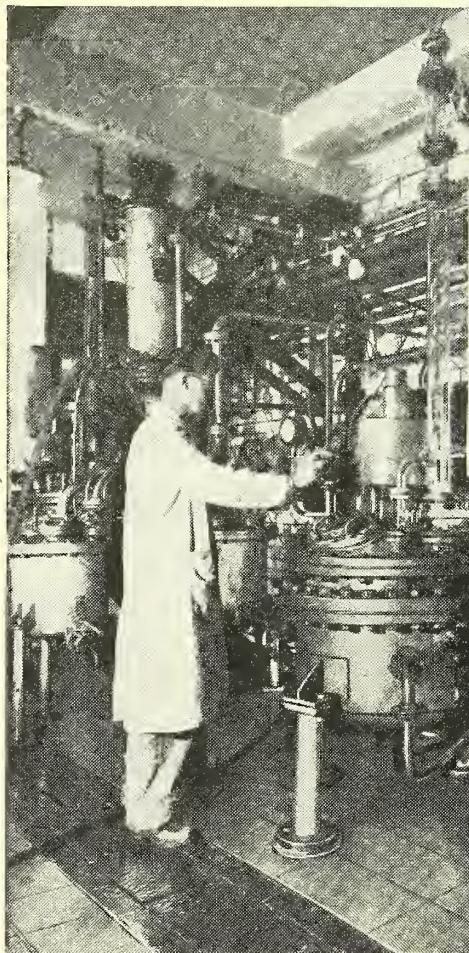
W. SUTTON & CO.
DRUGGISTS' SUNDRIES LONDON LIMITED
HORSESHOE LANE, ENFIELD, MIDDLESEX
Enfield 4747 (PRIVATE BRANCH EXCHANGE)
also Albert Road, Newbury, Berks. Newbury 1461/2

Sutton's for Service!

in grains
or in tons

BARBITURATES

for home and export



PHENOBARBITONE B.P.
PHENOBARBITONE SODIUM B.P.
BARBITONE B.P.
BARBITONE SODIUM B.P.
BUTOBARBITONE B.P.C.
AMYLOBARBITONE B.P.C.
AMYLOBARBITONE SODIUM B.P.C.
CYCLOBARBITONE B.P.C.
CYCLOBARBITONE CALCIUM
HEXOBARBITONE B.P.
METHYLPHENOBARBITONE B.P.
QUINALBARBITONE SODIUM B.P.

The strictly accurate, analytical control of GEIGY Barbiturates at all stages in their manufacture ensures that every grain of the many tons produced in our works

is of the same, highest-possible, state of purity. GEIGY Barbiturates are used with confidence by the Medical Profession in all parts of the world.



GEIGY PHARMACEUTICAL COMPANY LTD.
MANCHESTER



The CHEMIST AND DRUGGIST

ANNUAL SPECIAL ISSUE, 1957

Volume 167

No. 4036



ESTABLISHED 1859
The weekly newspaper for pharmacy and all sections of the drug, pharmaceutical and fine chemical, cosmetic, and allied industries.

Official organ of the Pharmaceutical Society of Ireland and the Pharmaceutical Society of Northern Ireland.

BRANCH OFFICES:
BIRMINGHAM, 2:
111 New Street.
Phone: Midland 2921.
GLASGOW:
35 Kings Lynn Drive, King's Park,
S.4.
Phone: Langside 2813.
LEEDS, 16:
32 Wynford Rise, West Park.
Phone: Leeds 67 8438.

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Economic factors led to the introduction of rayon bandages, gauzes, etc. Technical advances have prompted other innovations.	
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The chemist with a photographic department today must know what colour methods are in use and where processing is undertaken.	
BRISTOL	709
The glamour that attaches to the name of this year's meeting-place of the British Pharmaceutical Conference is made a little sharper in outline. A glimpse is given of one of the country's oldest drug houses.	
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Pen-and-ink sketch by Geoffrey Fletcher of a pharmacy at Winchester.	
OLD ENGLISH MEDICINES IN AMERICA	714
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WILLIAM HARVEY	723
The tercentenary of the death of the English physician whose name is forever associated with the discovery of the circulation of the blood was recently celebrated. His contribution to medicine is assessed.	
PHARMACEUTICAL MANUFACTURERS OF THE UNITED STATES	729
What were the origins and what the home developments of some of those American manufacturers who in recent years have "invaded" Britain and are here to stay?	
THERMOMETRY IN MEDICINE	735
Taken for granted today, the clinical thermometer has not been universally accepted throughout the 300 years of its existence.	
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In poultry raising the only D vitamin that has any effect is D ₃ , whose history, method of manufacture and uses are described.	
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To cater for the demand for a chemical in growing use both at home and overseas a factory has been established at Northolt.	



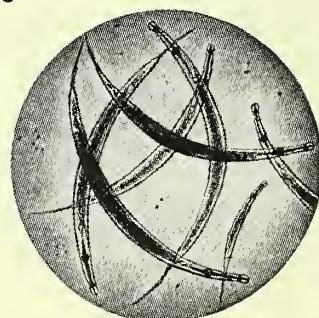
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LIBRARY

Coll.	WelMOmec
Coll.	
No.	

Children like it... worms don't

One week's treatment with 'Antepar' Elixir is usually sufficient to eradicate *threadworms*. A single dose clears *roundworms* from the gut. Effective without fasting, purging or supporting measures, 'Antepar' acts by paralysing the worms—they are then expelled by normal peristalsis.

'Antepar', the original elixir of piperazine, is well tolerated by patients of all ages. Its pleasant taste is popular with children. Containing piperazine citrate equivalent to 500 mgm. of piperazine in each fluid drachm, 'Antepar' is supplied in bottles of 4 fl. oz. and 20 fl. oz.



'ANTEPAR' ELIXIR



BURROUGHS WELLCOME & CO. (THE WELLCOME FOUNDATION LTD.) LONDON

Associated Houses:

AUCKLAND BOMBAY BUENOS AIRES CAIRO DUBLIN JOHANNESBURG KARACHI MONTREAL NAIROBI NEW YORK RIO DE JANEIRO ROME SYDNEY

The CHEMIST AND DRUGGIST

Volume 167

JUNE 29, 1957

No. 4036

Shops Bill: "No Assurances" COMMONS REJECTS OPPOSITION DEMAND

AN Opposition motion put in the House of Commons on June 25 by Mr. Alfred Robens calling on the Government to implement "in full, and without delay" the recommendations of the Committee of Inquiry into the Health, Welfare and Safety in Non-industrial Employment and Hours of Employment of Juveniles was rejected by 309 votes to 230.

Mr. Robens said that the Opposition would not have tabled the motion had not the Home Secretary refused to give any indication that the Government's intentions were still the same as they had been for many years. In 1956 the then Under-Secretary at the Home Office had given a pledge that it was the Government's intention to introduce a Bill to deal with the matters contained in the report "as soon as possible." If the Government did not implement the report the Opposition would do so when they were returned to power.

The Home Secretary (Mr. R. A. Butler) said that the Government had already accomplished a good deal. The 1956 Shops Bill had been somewhat misunderstood by those who had criticised the Government's action in withdrawing it because there was insufficient time to get it through this session. The Bill was not, and had never been claimed to be, a revolutionary measure of social reform. It was a tidying-up measure of intense complexity. The Government agreed with all the observations which the Gowers committee had made on the limitation of working hours, but it would be necessary to find the right equation between the shop worker and the ordinary worker or consumer. The clauses of a possible Bill must be very complicated, and he could therefore give no assurance about future legislation.

Harvey Banquet

ELIZABETHAN SETTING AT FOLKESTONE

THE Harvey tercentenary congress banquet held at Folkestone (where Harvey was born in 1578), on June 8, was one of the highlights of a week of celebrations arranged by the Harveian Society of London. The banquet took place in a period setting. The menu, *décor* of the banqueting hall, and many other features were Elizabethan. About 400 guests heard a Beefeater open the banquet with a blast on the mediæval Burgmote town horn. The Elizabethan menu which followed included such delicacies as royal sturgeon, stuffed pigeon in pie crust, sallet of Hippocrates island (a special salad), and puree of raspberry with cream. Sir Geoffrey Keynes, after paying tribute to Harvey as a benefac-

tor of the town, said that guests could never before have seen a banquet on such a wonderful scale, or one planned with such originality. Replying, the mayor of Folkestone said William Harvey was a true son of Folkestone. He was the product of the steadfast virtues of a people who gained a hard living from the sea. Referring to the fact that the home of William Harvey was also the home of Pfizer, Ltd., he announced the award by the company of an annual scholarship to the Harvey grammar school of £130 5s.—the amount left by Harvey for the purchase of the original school property. He thanked Mr. R. C. Fenton (managing director, Pfizer, Ltd.), and his fellow directors, for the award "which would be a current reminder that the school had a new benefactor." The toast of "William Harvey" was proposed by Professor D. N. Dunlop (president, Harveian Society of Edinburgh). It would be easy, he said, to

make a list of the people whose work might be equivalent to that of Harvey in merit. But what produced that unique combination of the man and his work? Earlier in the day lectures had been delivered on the life of Harvey. In the afternoon a service in his memory was held at Canterbury Cathedral.

Glass Container Prices

INCREASED FROM JUNE 24

WITH the exception of certain branded ranges, glass bottles and containers were increased in price by about 7½ per cent. on June 24. The increase has been attributed in most cases to increased wages, salaries, raw materials and fuels. Prices of some companies had been stabilised for nearly eighteen months before the increase.

Parting Gifts

BRISTOL STUDENTS FÊTE A LECTURER

LEAVING to take up a post as lecturer in pharmacognosy at Chelsea Polytechnic, Mr. E. J. Shellard was presented with a wallet and pen set at a dinner in his honour given by the School of Pharmacy, College of Technology, Bristol, on June 21. Mr. Shellard has been pharmacognosy lecturer at Bristol for ten years. Miss S. E. Sales, a second-year student, presented the gifts on behalf of the students and laboratory technicians. Ninety students



HARVEY TERCENTENARY CELEBRATIONS: The Pfizer singers in period costume sing Elizabethan madrigals at a Harvey centenary banquet staged at Folkestone on June 8.

and staff of the school attended the dinner. A toast to Mr. Shellard was proposed by Mr. W. Cooper (a former headmaster of the school). Mr. D. A. Norton (headmaster) proposed the health of the leavers, and Mr. G. H. Moore (principal, Bristol College of Technology), proposed the health of the school. Mr. W. H. Williams (chairman, Bristol Pharmacy Students' Association) presided.

60 Years of Pharmacy

JUBILEE OF A MALVERN BUSINESS

A. W. GEDGE & Sons, Ltd., Galen Pharmacy, Malvern Link, Worcs, celebrated their sixtieth anniversary recently. The firm was founded in 1897 by the late Mr. A. Westley Gedge and became a limited company in 1941 under its present title. It is still a family concern with a son of the founder, Mr. C. Essington Gedge, as the present head and two grand-daughters as co-directors. After studying at Birmingham Technical College and South of England College of Pharmacy, Mr. C. E. Gedge qualified in 1922 and, with further experience in several businesses, went to London, where he qualified as an optician in 1925. The same year he returned to Malvern and later an optical department was opened at Galen House. The shop was enlarged and modernised in 1954. For thirteen years Mr. C. E. Gedge was the secretary of the Worcestershire and Herefordshire Branch of the Pharmaceutical Society and subsequently its president. Among his most treasured possessions are the half-dozen swan-necked Venetian carboys which still adorn the two front windows at Galen Pharmacy and came direct from Italy when the shop was fitted out by his father.

Plastics Exhibition

THIRTY-SEVEN OVERSEAS ENTRIES

FOR the first time the British Plastics exhibition is becoming international in character, eleven dominion and foreign countries being represented by thirty-seven exhibits. That was stated by Mr. C. E. WALLIS (chairman and managing director, Associated Iliffe Journals, Ltd., organisers of the exhibition) at a meeting in London on June 20. The exhibition, which is being held at Olympia, London, July 10-20, has attracted 250 exhibitors whose stands will occupy a total of 250,000 sq. ft. A convention is being held in conjunction with the exhibition.

More Poliomyelitis

HIGHEST NUMBER OF CASES RECORDED

POLIOMYELITIS cases reported in Britain this year are so far the highest since records were started in 1948. Figures given by the Ministry of Health show that up to June 8, 1,083 cases were reported. That compares with 644 cases for the same period last year. A Ministry official commented that, while the figures were the highest on record for the period, that did not mean they were of epidemic proportions. "Figures tend to vary a good deal," he said. The previous highest figure for the period was 840 cases in 1951.

SCOTTISH NEWS

Pharmaceutical Costs

COMMITTEE OF INQUIRY SET UP

WHEN the House of Commons met on June 25 the Secretary of State for Scotland (Mr. J. MACLAY) said that the terms of reference for the Committee of Inquiry into the cost of pharmaceutical services in Scotland (see *C. & D.*, January 12, p. 29) would be:

"To inquire into prescribing practice in the general medical services and in the hospital and specialist services in Scotland, with particular reference to the factors governing costs, and to make recommendations."

The committee would be composed of:—Mr. J. B. Douglas (*Chairman*), Professor S. Alstead, Professor R. B. Hunter, Drs. J. C. Knox, E. V. Kuenssberg, J. R. Langmuir, D. McCall, J. O. McDonagh, E. G. Oastler, Professor T. B. Smith, Mr. J. C. Stewart and Dr. A. Stewart Henderson.

A Dream of Pharmacists

NORTHERN SCOTTISH MEMBERS AGREE

THERE was a record attendance at the annual meeting of the Northern Scottish Branch of the Pharmaceutical Society held at Dingwall on May 30. Mr. W. A. Park (chairman of the Scottish Executive) addressed the Branch on "Pharmaceutical Dreams," and it was finally agreed, after much discussion, that under present circumstances purely professional retail pharmacy was not economically feasible; pharmacists could only strive towards it for the benefit of pharmacy in the future.

N.H.S. Appliances

ADDITIONS TO SCOTTISH LIST

TUBULAR gauge, for order on form EC10A only, and incontinence pads, as specified in the Drug Tariff, are added to the list of appliances (part 1 of the third schedule) available from July 1 in Scotland under the National Health Service (S.I., 1957, No. 1008 (S50)). After the item "applicators," the words "as specified in the Drug Tariff" are also added.

IRISH NEWS

THE REPUBLIC

Gaelic Football

RECRUITS AMONG NEW STUDENTS?

THE Dublin College of Pharmacy Gaelic Athletic Association football team is playing a match against a selected Dublin North County team at the International Pharmaceutical Students' Federation congress at Mosny, co. Meath, in September. Later this year an outing is being arranged to Athlone, with a trip up the Shannon in the team's new launch. Membership of the College team is drawn mainly from the students attending the College, and new students are urged to join their own College G.A.A. Club, by contacting the captain (Mr. Michael Shannon) at Rooney's Pharmacy, Templeogue, Dublin.

NEWS IN BRIEF

LORD Cohen of Birkenhead has been elected *Chairman*, and Sir Cecil Oakes *Vice-chairman*, of the Central Health Services Council.

SIR Harold Roxbee Cox and Dr. C. J. Smithells have been appointed members of the Council for Scientific and Industrial Research.

THE Minister of Health (Mr. Dennis Vosper) visited the research laboratories of the Wellcome Foundation, Ltd., Beckenham, Kent, on June 20.

A CAMERA was stolen from the pharmacy of Hadfield & Slee, Ltd., 172 Claremont Road, Manchester, 14, by thieves who smashed a display window, on June 19.

A MANUAL, "Code of Practice for the Protection of Persons Exposed to Ionising Radiations," for all National Health Service hospitals, is available from H.M. Stationery Office, price 8s.

THE Russian section of the London Chamber of Commerce has produced a booklet (price 5s.) designed to assist British firms interested in entering the Russian market or expanding their trade with the U.S.S.R.

"WITHIN five years or less Britain will be free of bovine tuberculosis," said Mr. D. Heathcoat Amory (Minister of Agriculture, Fisheries and Food) at the annual luncheon of the Royal College of Veterinary Surgeons on June 5.

OXFORDSHIRE county analyst states in his report for the first quarter of 1957 that "there was not one sample to which objection could be taken and I think this must be the first time that this has occurred, certainly since I have been county analyst."

THE Institute of Weights and Measures Administration is organising a county chief officers' section to advise the County Councils' Association "upon the numerous questions arising in connection with proposed new weights and measures legislation."

A PLAN to give Northumberland and co. Durham a modern road system is outlined in "Roads Matter—the North-East," a booklet published on June 12 by the Roads Campaign Council which launched in Darlington on June 18 a seven-week campaign for modern roads in the North-east.

A GRANT of £5,000 has been made by the Wellcome Trustees to McGill University, Montreal, for the purchase in the sterling area of books related to the history of medicine. The Trustees are also providing £1,200 annually for twenty-five years to assist the further development of the University's Osler library.

THE following chemicals have been exempted from Key Industry Duty for the period June 28 to August 18: Ethylene brassylate, 2-ethyl-2-hydroxymethylpropane-1:3-diol, ethyltrichlorosilane, R. laevulose, phenyl *isothiocyanate*, phthalic anhydride, piperonylic acid, procaine hydrochloride, and sodium peroxide.

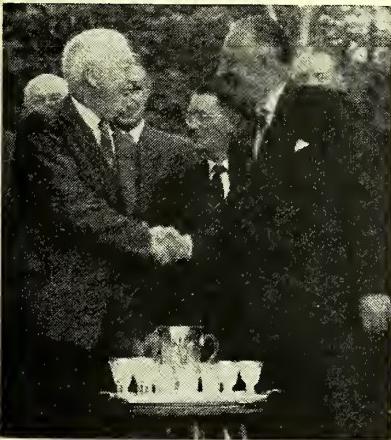
THE Treasury has issued a thirty-two page book, illustrated with charts and maps, on the proposed European Free Trade Area ("Free Trade in Europe,"

H.M. Stationery Office, price 2s.). The book explains the proposed European Economic Community of the six European countries, sets out how the Free Trade Area would fit in with it, and provides facts and figures to help an exporter assess the scope and possible impact of the proposals on United Kingdom industry.

SPORT

Golf. — SOUTH LONDON AND SURREY PHARMACISTS' GOLFING SOCIETY, summer meeting at Walton Heath on June 19. President's prize, 1, J. Mackenzie, Sundridge Park, 33; 2, D. Spier, Shirley Park, 32; 3, W. McGeorge, Addington Court, 31. Visitors, F. Dawes, Shirley Park, 35; 2, F. S. Broad, West Hove, 34.

IRISH CHEMISTS' GOLFING SOCIETY, annual four-day outing, held at Rosslare, co. Wexford, recently. Excellent weather attracted a big gathering of pharmacist-golfers. Opening competitions on the Sunday were for prizes presented by Imperial Chemical Industries, Ltd. On the Monday everybody competed for the president's prize, presented by Mr. Philip Fahey. That evening Mr. Fahey was presented with a gold wristlet watch by members of the Society in appreciation of the work he had done during the sixteen years he was secretary. Captain Eric Massey made the presentation after many well deserved tributes



Mr. John Gilmartin receives the congratulations of Mr. Eric Massey (captain) on winning the captain's prize of the Irish Chemists' Golfing Society.

had been paid to Mr. Fahey. Tuesday was given over to bogey competitions for the Society's prizes, and Wednesday to competition for the captain's prize. SUNDAY: Eighteen holes strokes, 1. M. Dougan (17), 72; 2, D. Arnold (11), 75. First bogey, T. J. Lynch (6) 2 down; second bogey, M. L. Cashman (8), 2 down. Best first nine, F. Pierce (39); best second nine, E. McManus (35). MONDAY: President's prize, 1, E. McManus (15), 71; 2, J. Holland (17), 74; 3, A. Walsh (7), 74. First bogey, D. Mulvey (9), 1 down; 2, R. Tierney (12), 2 down; 3, J. Power (15), 3 down. TUESDAY: Class one, 1, S. J. Savage (8), 2 down; 2, T. J. Lynch (5), 2 down. Class two, 1, J. Holland (14), 5 down; 2, J. Smyth (13), 6 down. Class three, 1, F. Reen (16), 6 down; 2, C. Collis (17), 6 down. WEDNESDAY: Foursomes, 1, D. Mulvey and F. Reen (35); 2, M. L. Cashman and J. Holland (35). Captain's prize, 1, J. Gilmartin (10), 68. Strokes, 1, D. Arnold (10), 71; 2, P. Twohig (16), 72; 3, P. J. Morgan (14), 73. Bogey, 1, M. Prendergast (6), all square; 2, T. J. Lynch (6), 1 down; 3, F. McKenna (13), 2 down.

Bowls. — ULSTER CHEMISTS' ASSOCIATION BOWLERS were defeated, 67 to 100, by Belmont Bowling Club in their annual match held in Belfast on June 19. Ulster Chemists, S. Magowan, 24; J. Caldwell, 15; G. Hamilton, 18; W. J. Beattie, 10. Belmont Bowling Club, W. Thrush, 15; W. Cowan, 20; H. Bowden, 29; R. H. Howard, 36.

TOPICAL REFLECTIONS

By Xrayser

Substitution

There are so many sides to the subject of "substitution," as discussed by the congress of the Franco-British Pharmaceutical Commission at Evian-les-Bains (pp. 662-63), that it is not surprising that there should have been "great argument about it and about." It is accepted practice in this country to carry out the instruction and the intention of the prescriber except in so far as they may jeopardise the prospect of life in the person for whom the medicine is intended. Occasionally an error may be so obvious as to make an approach to the prescriber quite unnecessary, and it would be pedantic in the extreme to ask a busy physician if he really intended 2 oz. of zinc ointment to be taken in teaspoonful doses after meals. But it has always been the practice of the British pharmacist to consult the prescriber in all cases of doubt, and it is probably true to say that the modern doctor is a little more tolerant of the pharmacist's desire for accuracy than was his immediate predecessor. No pharmacist, despite the provocation of multiplicity, would deliberately substitute without the consent of the prescriber, though the occasion may arise in urgent circumstances where such action could perhaps be justified. There are two aspects of the question so far as the proprietary preparation is concerned: there is the ethical duty of the pharmacist to the prescriber, and there is the shadow of the prosecution for trade-mark substitution. In these days of difficulty, the pharmacist has a feeling of affection for the doctor who leaves him with a certain choice by omitting a brand name when there may be upwards of a dozen such.

Farmacia

From Evian-les-Bains and its pharmaceutical congress I have, in imagination, visited Italy also this week, to make the acquaintance of the Farmacia Verdecchia in the village of Recanati. I have been privileged to pay my visit in the company of one who, were he not so modest, might reasonably claim to be the most famous chemist's apprentice in the world. It may be argued, perhaps, that it is not for his pharmacy that he is remembered, and that if he had remained with "the cough syrup, the magnesia powder and the flies," in the little village of Recanati, the world conceivably might never have heard of him. His name is Beniamino Gigli, and I am indebted to the wholly delightful autobiography *The Gigli Memoirs* (Cassell & Co.) for fascinating glimpses of what appears to have been a real pharmacy. "Old ladies regaled me with gruesome details of their ailments, and the ailments of their relatives; I soon became a repository of curious information, and went through a phase of seeing people, not as themselves, but as their perambulating intrigues or afflictions." Gigli speaks of the atmosphere of culture and "all those Latin names on the little drawers and on the big coloured jars." The great tenor apparently had great difficulty in explaining the *farmacia* to his friends in America, who appeared to imagine that little Beniamino (he was twelve years old when he started work) had spent his early formative years selling sandwiches and ice-cream soda, whereas he spent five years in making pills and other "ethical" products—"five dusty, drowsy, provincial years of rattling the Venetian blinds up and down in the farmacia on sunbaked afternoons." Since reading the book I have reviewed my own apprentices down the years. One had an ear-splitting whistle, and another was suspected of playing the drums in a dance-band, but I cannot lay claim to one who reached the stage of La Scala, Milan, or the Metropolitan Opera House in its heyday in New York.

Refresher Course

I have again to compliment the Croydon Branch of the Pharmaceutical Society on its enterprise in arranging another—and more advanced—refresher course for the coming winter. The fact that ninety pharmacists attended last year suggests that, given suitable material, the evening meetings at Bloomsbury if revived might still be found attractive.

COMPANY NEWS

Last year's figures in parentheses.

BOILEAU & BOYD, LTD., Dublin.—Mr. John A. Cunningham (secretary) has been appointed a director.

CROOKES LABORATORIES, LTD.—Dividend for year ended March 31 is 25 per cent. (same). Trading profit, etc., £112,725 (£137,330); net profits, £42,047 (£64,085) after tax of £51,642 (£55,049). Current assets, £711,497 (£718,385).

P. P. PAYNE & SONS, LTD.—Parent's trading profit for six months to March 31, 1957, is £88,037 (£71,963 corresponding period). Net profit, before tax, £67,197 (£52,022), interim dividend 5 per cent. (same), forward (subject to tax) £52,797 (£37,622). The increase in turnover during past financial year has again been maintained during six months period under review at approximately 8 per cent.

SANITAS TRUST, LTD.—A final dividend of 20 per cent., making 22½ per cent. on Ordinary capital for the year to March 31 is announced (against a previous total of 17½ per cent. which included a 5 per cent. bonus). Subject to C.I.C. consent, it is proposed to make a scrip issue of two-for-five. The group profit is £275,946 (£279,830) after tax of £230,882 (£215,317), subject to audit. The Sanitas Co., Ltd., announce group profits at £192,842 (£156,370) after tax of £124,611 (£97,214).

LAPORTE INDUSTRIES, LTD.—The statement by the chairman (Mr. L. P. O'Brien) accompanying the accounts for the year ended March 31, mentions that its subsidiary Laporte Chemicals, Ltd., had a successful trading year but may have to mark time during the current financial year as regards increased earnings. A large-scale plant being built at Warrington to manufacture hydrogen peroxide by a chemical process should be completed by April 1958 and when in satisfactory production should yield a high quality product at a lower cost than from the electrolytic plant which has operated over the last thirty years. [For accounts see *C. & D.*, June 15, p. 638.]

BOOTS PURE DRUG CO., LTD.—Sales turnover in year ended March 31 at £72½ millions was an increase of 8 per cent. It was the seventh successive year that profits increased and according to a statement by the chairman (Mr. J. P. Savage), the chemicals division was mainly responsible for that increase. The amount of money invested in stock at the end of the year was £14·3 millions or £1 million less than the previous year despite sales increase. Expenditure on buildings was £2·4 millions and was financed out of own resources. Cash balance at March 31 was £757,000 (£300,000 overdrawn). In the future capital programme it is intended to enlarge and modernise at least sixty-five branches a year employing the "most modern and effective techniques, display and selling." Unprofitable shops are to be closed and others opened on new housing estates. On dispensing the chairman says that the business has been considerably affected by the levy imposed in December 1956. [For accounts see *C. & D.*, May 18, p. 537.]

MARRIAGES

SCHIMMER—HOST.—At St. James' Church, Spanish Place, London, W.1, on June 22, Philip Carver Schimmer, B.Pharm., M.P.S., son of Mr. R. C. Schimmer (Brome & Schimmer, Ltd.), to Diana Host, S.R.N., Blackheath, London, S.E.3.

DEATHS

BUTTERFIELD.—On June 5, Mr. Greenwood Butterfield, M.P.S., c/o Mr. Richardson, Shaw Farm, Oxenhope, nr. Keighley, Yorks. Mr. Butterfield qualified in 1901.

DRAYTON.—On June 11, Mr. Ernest Drayton, M.P.S., 3 Colebrooke Avenue, West Ealing, London, W.13, aged ninety.

HUMPHREY.—On June 6, Mr. Walter Edwin Humphrey, 21 Cromwell Road, Cleethorpes, Lincs, aged eighty-five. Mr. Humphrey qualified as a chemist and druggist in 1897. He carried on a business as a pharmaceutical chemist in Sea View Street, Cleethorpes, for many years, retiring about eight years ago. He was born in Wisbech, Cambs, and apprenticed in Louth, Lincs.

JONES.—On June 19, Mr. Arthur Jones, M.P.S., Bridge House, The Square, Barnstaple, Devon. Mr. Jones qualified in 1922. Proprietor of a pharmacy in Barnstaple, he was a former chairman and a former secretary of the North Devon Pharmaceutical Association. A freemason, he was founder of the Lodge of Good Intention, No. 6927, Barnstaple, and a member of several other masonic bodies. He was a member of the local chamber of commerce, and of Barnstaple Rotary Club. He was an enthusiastic golfer.

NORTH.—On June 15, Mr. Henry Howard North, M.P.S., 4 George Street, Stroud, Glos. Mr. North had been in business in George Street for the past thirty-four years. Before that he was for sixteen years manager for Boots, Ltd., in the town. He was for nearly thirty years vicar's warden at Stroud parish church.

REYNOLDS.—On June 11, Mrs. Fred Reynolds, Church Hill, Grange-over-Sands, Lancs, aged ninety-six. Mrs. Reynolds was the widow of the late Mr. Fred Reynolds, at one time a partner in Reynolds & Branson, Ltd., manufacturing chemists, Leeds.

SCOTT.—At 35 Don Street, Riddrie, Glasgow, E.3, on June 11, Mrs. Annie Edgar Scott, wife of Mr. David Scott, M.P.S.

THOMSON.—On June 10, Mr. Arthur Thomson, M.P.S., 27 The Ridgeway, Kenton, Harrow, Middlesex, aged seventy-nine.

TIPPING.—On June 17, Mr. Joseph Tipping, M.P.S., 74 Linden Road, Levenshulme, Manchester, 19, aged eighty-four.

UNDERHILL.—At Lyme Regis, Dorset, on June 17, Dr. Sydney William Frank Underhill, M.A., B.M., B.Ch., aged sixty-seven, after a short illness. Until August 1956 Dr. Underhill was chief physiologist of The British Drug Houses, Ltd., having joined their staff in 1925. At that time the evaluation of

substances by biological assay was in its infancy, and Dr. Underhill played an important part in the development and application of standardisation of medicaments by biological means. His many scientific publications in that field brought him an international reputation.

Dr. Frank Hartley writes: In various travels on behalf of the company I discovered the widespread esteem in which Dr. Underhill was held, and that gave me great pleasure.

WILLMOTT.—On June 6, Miss Eva Amelia Willmott, M.P.S., 10 Links Avenue, Gidea Park, Essex, aged fifty-five.

WOOLHOUSE.—Recently, Mr. John Richard Woolhouse, M.P.S., 26 Dalton Green Lane, Huddersfield, Yorks, aged eighty. Mr. Woolhouse was a former chairman of the Huddersfield Branch of the Pharmaceutical Society. He was believed to be the Branch's oldest member. Formerly in business at Westbourne Road, Marsh, Huddersfield, he retired some years ago, but maintained an active interest in the Branch. Before opening in Marsh, he was in business in Lister Street, Moldgreen, Huddersfield.

BUSINESS CHANGES

IVERS-LEE (G.B.), LTD., are removing to 225 Bath Road, Slough, Bucks, on July 1 (telephone: Slough 21234).

MR. D. A. COVELL, M.P.S., has acquired the pharmacy at 153 Fisherton Street, Salisbury, previously owned by Mr. W. F. Mildren, M.P.S.

STANLEY C. JOHNSON, LTD., have removed their warehouse and offices to Oliver House, 51 City Road, London, E.C.1 (telephone: Clerkenwell 4266).

THE postal address of the new branch of Nottingham Co-operative Chemists, Ltd., is Southchurch Drive, Clifton Estate, Nottingham, and not as previously stated.

Appointments

GEVAERT, LTD., Great West Road, Brentford, Middlesex, have appointed Mr. B. Short their representative for Surrey, Kent and Sussex and Mr. W. H. Teall their representative for Warwickshire (excluding Birmingham and district), Northamptonshire, Huntingdonshire, Bedfordshire, Oxfordshire, Buckinghamshire and Berkshire.

AYRTON, SAUNDERS & CO., LTD., P.O. Box 38, 34 Hanover Street, Liverpool, 1, have appointed Mr. R. C. Fazakerley to represent their interests in certain overseas territories. He sailed from Liverpool on June 13 for Lagos, Nigeria, on the start of an extended tour of investigation and market research in West Africa.

W. J. BUSH & CO., LTD., announce that Mr. H. M. Riley (general manager of the company's works at Widnes) is retiring on July 1 in accordance with medical advice. Mr. Riley recently achieved forty years' service with the company. He is succeeded by Mr. J. F. G. Wynne, B.Sc., who has had thirty-four years' service with the company.

NEW PRODUCTS AND PACKS

Cold Sore Salve.—Clay & Abraham (Mfg.), Ltd., 2 Upper Duke Street, Liverpool, 1, are marketing a new salve, Candol, for the treatment of cold sores on the face and lips and inside the nostrils. The product, which is in a cartoned collapsible tube with applicator nozzle, is readily applied within the nostril.

Milk Slimming-diet.—Dendron Distributors, Ltd., 94 Rickmansworth Road, Watford, Herts, are distributors in Great Britain of Larson's S.M.D. (Swedish milk diet) for slimming. More than a way of discouraging the appetite, the product, which is normally taken on three days each week, is claimed low in calories but so well fortified with vitamins, minerals, glucose, carbohydrates and protein that it nourishes and sustains on the slimming days.

Digestive Lozenges.—Ucal, Ltd., Cheltenham, are marketing through their associated company Chelspa, Ltd., Glendouran Laboratories, Keynshambury Road, Cheltenham, a new "ethical" speciality in two varieties: Ucalon digestive lozenges (neutral) containing magnesium trisilicate, aluminium hydroxide; and Ucalon-K (alkaline) containing bismuth carbonate rhubarb and diastase; and Ucalon-K (alkaline) containing bismuth carbonate and sodium bicarbonate. The lozenges are available direct or through the usual trade wholesalers.

Phenylketonuria Treatment.—Allen & Hanburys, Ltd., Bethnal Green, London, E.2, have launched a new medicinal speciality Cymogran, designed to simplify the preparation of the restricted diets (low in phenylalanine) used in the treatment of phenylketonuria in children. Cymogran combines acid-hydrolysed casein of low phenylalanine content with tyrosine, tryptophane, methionine, starch, sugar, hydrogenated vegetable oil and mineral salts. It contains 10 mgm. phenylalanine per 100 gm. The formula includes all the requisite amino-acids and mineral salts. Vitamins, carbohydrates and fat in the permissible forms need to be added to the diet.

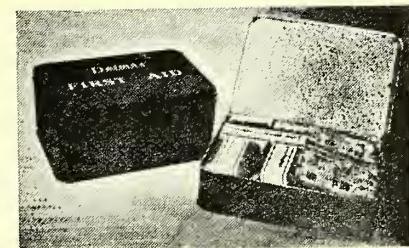
Electric Shaver Without Flex.—An entirely new type of electric dry shaver—without mains flex and with a built-in rechargeable dry accumulator—now being launched by Perihel, Ltd., 146 New Cavendish Street, London, W.1, is claimed to have a life of at least ten years. The shaver, which will be marketed under the name Travelux Royal,

the shaver may be used anywhere, any time. The Travelux Royal has a single rotary cutting head capable of nearly 4,000 revolutions per minute, and provides "complete deep shaving." It is packed in a neat zipped leather carrying case, complete with cleaning brush. Three-colour showcards and leaflets are available.

Stick Deodorant.—E. Griffiths Hughes, Ltd., Adelphi, Salford, Manchester, are marketing a new stick deodorant and antiperspirant, Sno-Stik, which is being widely advertised.

Fixative for "Hair-do's."—Steiner Products, Ltd., 110 Hornsey Road, London, N.7, are marketing a new "smart set" containing Steinolan, which "conditions the hair to soft manageability" and "seal-set," which makes the groomed look of a hair-set last much longer.

Hair Lacquer.—Dreston Beauty Products, Dreston Laboratories, Turnpike Lane, London, N.8, are marketing a new product, Dreston hair lacquer, in plastic spray "squeeze" bottle. The product is claimed to control the hair without stiffening it, leaving it "soft



FARM FIRST-AID: Black-enamelled metal first-aid case produced by Dalmas, Ltd., Junior Street, Leicester (C. & D., June 22, p. 669), to enable farmers and smallholders to meet the requirements of the Agriculture (First Aid) Regulations, 1957.

and natural looking." As an introductory offer a sachet of Dreston enriched cream shampoo is being given free with each hair lacquer spray; eighteen of each product are supplied in a display carton.

New Features in a Vacuum Flask.—L. Rees & Co., Ltd. (Isovac division), 31 Wilson Street, London, E.C.2, have incorporated in the latest model of the Isovac vacuum flask a new plastic cup (unbreakable in normal use); a new all-nylon stopper; and a new metallic finish, in choice of five pastel shades (blue, green, lilac, silver and gold).

TRADE

500-tablet Pack.—Glaxo Laboratories, Ltd., Greenford, Middlesex, announce that a pack of 500 Penicillin-V tablets is available.

Distribution Change.—William R. Warner & Co., Ltd., Power Road, London, W.4, are taking over on July 1 the distribution of Mandelamine and Pyridium. Prices are unchanged.

Discontinued.—Genosan, Ltd., Loughborough, Leics, announce that the pack of ten Cojene tablets has been discontinued, and that warehouse stocks are exhausted. It is superseded by a wallet pack of six tablets.

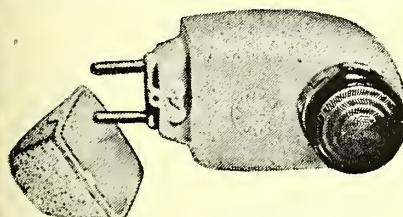
New Sizes.—G. D. Searle & Co., Ltd., Lane End Road, High Wycombe, Bucks, announce the introduction of the following new pack sizes:—Dramamine: bottle of 500 50-mgm. tablets; Vallestrol: bottle of fifty 3-mgm. tablets.

Now in Three Strengths.—The Distillers Co. (Biochemicals), Ltd., Broadway House, Wimbledon, London, S.W.19, announce that Distaqaine V, "the original British penicillin V," is now available in three strengths of tablet: 60, 120 and 240 mgm.

Factory on Overtime.—Vacco, Ltd., Grosvenor Gardens House, Grosvenor Gardens, London, S.W.1, state that their factory at Newhaven, Sussex, has switched to overtime to cope with the demand for the screw-on range of Vacco flasks (C. & D., June 22, p. 669).

Advertised Price Corrected.—Thomas Kerfoot & Co., Ltd., Vale of Bardsley, Ashton-under-Lyne, point out that the price of Kik insect repellent is 3s. 9d., and not as given in the company's announcement in the C. & D., June 22.

New Sizes.—County Laboratories, Ltd., County Building, Honey Pot Lane, Stanmore, Middlesex, announce the introduction of two new sizes of Silvikrin hair cream and a new size of Silvikrin liquid shampoo. The two hair



can be plugged direct into a mains socket overnight once a week, gaining power for a full week's shaving. The inconvenience of a mains lead attachment whilst shaving is eliminated, and

NOTES

cream jars supersede the present intermediate size of jar. The new size of liquid shampoo contains sufficient for at least seven applications.

Bonus Offers

JOHN BELL, HILLS & LUCAS, LTD. Worsley Bridge Road, London, S.E.26. Brontan sun-tan cream. Thirteen to doz. for display (minimum three doz.).

DENDRON DISTRIBUTORS, LTD., 94 Rickmansworth Road, Watford, Herts. Larson's S.M.D. (Swedish milk diet). Twelve for price of eleven. Until July 12.

VITAMINS, LTD., Upper Mall, London, W.6. Vitavel syrup. Display bonus equivalent to twelve bottles invoiced as eleven. July 1-13 only.

FROM THE PUBLISHER'S PAGES

Counter Cosmetics

T. L. BENTON & CO., LTD., 186 Seven Sisters Road, London, N.7, report an overwhelming demand for their Chandau shampoo (lanolin, lemon cream, coconut, champagne, beer or dandruff), and Chandau bubble bath in sachet.

Gill's dandruff remover shampoo and Jochem's Dutch hair preparation are available from BEAUTISALES, LTD., 35 Old Bond Street, London, W.1 (in Eire from MUR-RA, LTD., 132 St. Stephen's Green, Dublin).

A hair colour streak "as easy to use as a lipstick" is French Accent, issued by FRENCH & SCOTT, LTD., 4 Curzon Place, London, W.1.

The Pride range of hair beauty preparations marketed by B. N. FURMAN (PRODUCTIONS), LTD., 133 Fonthill Road, London, N.4, includes spraying lacquer, scalp milk, egg-and-lemon cream shampoo, brilliantine, etc.

The Linc-o-Lin beer shampoo is available in "barrels" of two sizes,

sachet of beer-bottle shape, and "beer" bottle from LINCOLN HAIR PRODUCTS, LTD., 55 Stratford Road, London, W.3.

Shadeine is claimed by the makers, SHADEINE CO., LTD., 49 Churchfield Road, London, W.3, to be "still the best hair tint." For lightening "mousy" hair golden Shadeine is available.

Over-the-counter Medicines

"The infants' medicine of 150 years' standing" is Atkinson & Barkers infants' preservative, obtainable from ROBERT BARKER & SON, LTD., 13 Alistair Street, Manchester, 1.

A century-old reputation is claimed for Eade's pills and anodyne ointment by EADE'S PILLS, LTD., 232 Goswell Road, London, E.C.1.

EDME, LTD., 84 Regent Street, London, W.1, invite chemists to write for prices of their Edme "Autumn sun" extract of malt and cod-liver oil.

HEDGES (CHEMISTS), LTD., Dale End, Birmingham, are the proprietors of L260 medicated snuff (tobacco-licence necessary).

Ilox eye lotion with eye-bath cap is available in display outer of six bottles from B. HOOPER & CO., LTD., 6 Railways Place, Fenchurch Street, London, E.C.3.

Kay's linseed compound is available as a syrup and as pastilles from KAY BROS., LTD., Reddish, Stockport.

Tablets, pills and packed goods for the chemist are a speciality of LOFTHOUSE & SALTNER, LTD., Hull.

RIDDELL PRODUCTS, LTD., Ridell House, 10 Dunbridge Street, London, E.2, distribute for Gomax, LTD., Gomaxine antiseptic cream (for application to all kinds of open wounds, insect bites, etc.); Gomaxide liquid germicide (a household disinfectant); and Bruzoff (for relieving bruises, sprains, burns or scalds).

Sundries

BUTLER & CRISPE, LTD., 80 Clerkenwell Road, London, E.C.1, offer a range of face squares, the Ninona, in dust-proof wrappers.

P. B. COW & CO., LTD., 12 Hay Hill, London, W.1, illustrate and describe their Li-Lo plastic baby pants.

DURHAM-DUPLEX RAZOR CO., LTD., 72 Arundel Street, Sheffield, 1, claim that their hollow-ground blades for the Durham Duplex safety razor give more shaves than any other safety blade.

Feeders, teats and soothers in the Gripwell range are among products obtainable from HEATH BROS. & SONS, LTD., 98 Chapel Street, Salford, 3.

GEORGE HIGTON, LTD., Windmill Row, London, S.E.11, offer a range of baby pants, the Geortons, "for the well-dressed baby."

A cotton-wool "dispenser" pack for the Illmond absorbent cotton-wool issued by E. ILLINGWORTH & CO. (BRADFORD), LTD., Shelf, nr. Halifax, allows the user to take easily from the package as little as may be needed at one time. The package has tuck-in ends and is easily resealed.

"Generous" trade discounts are offered by PERIHEL, LTD., 146 New Cavendish Street, London, W.1, for their Actinea "portable sun" lamps.

An electric hair dryer, the Pifco, manufactured by PIFCO, LTD., Watling

Street, Manchester, 4, is offered in "enchanting" colours (petal pink, maple green, pastel blue, lilac and ivory).

Chemists are invited to discuss with the representative of the SCHOLL MFG. CO., LTD., 182 St. John Street, London, E.C.1, the use of available display material for Dr. Scholl's foot aids.

Super-quality hair nets in 15-denier nylon are available in film envelopes on hanging cards or in counter cartons from ROBERT SHAW & CO., LTD., Ascot Road, Nottingham.

Fine Chemicals

BIDDLE, SAWYER & CO., LTD., 4 Grafton Street, London, W.1, claim to keep clients throughout the world abreast of the latest pharmaceutical developments.

B.P. and technical grades of tannic acid are offered by the BRITISH DYE-WOOD CO., LTD., 19 St. Vincent Place, Glasgow, C.1.

BRITISH INDUSTRIAL SOLVENTS (the chemical division of the Distillers Co., LTD.), Devonshire House, Mayfair Place, Piccadilly, London, W.1, market the Bisomel range of organic chemicals for the soap, perfumery, cosmetics, toilet and pharmaceutical-preparations industries.

Alkaloids, sulphonamides and vitamins are among a wide range of fine chemicals available from CARNEGIES OF WELWYN, LTD., Welwyn Garden City, Herts.

Alkaloids, hormones, and a range of fine chemicals that includes meprobamate and warfarin are marketed by LAKE & CRUICKSHANK, LTD., North Bridge Road, Berkhamsted, Herts.

JOHN RILEY & SONS, LTD., Hapton, nr. Burnley, are actual manufacturers of sodium metabisulphite, hyposulphite and sulphite.

Gallic and pyrogallic acids, ephedrine and quinine are among chemicals manufactured by J. L. ROSE, LTD., Abbey Road, Barking, Essex.

Phenoxetol, claimed the "original anti-pyocyanine compound," is manufactured by Nipa Laboratories, LTD., Tre-forest Industrial Estate, nr. Cardiff, and distributed by P. SAMUELSON & CO., Roman Wall House, 1 Crutched Friars, London, E.C.3.

Aloin, bile salts and chrysarobin to meet pharmacopoeial requirements may be obtained from T. & H. SMITH, LTD., Blandford Chemical Works, Edinburgh, 11.

Crude Drugs and Botanicals

BROME & SCHIMMER, LTD., 7 Leather Market, London, S.E.1, claim to hold the most comprehensive stock in London of botanicals, crude drugs, balms, waxes, etc.

WM. CHAS. BRUMLEU, LTD., 4 Fenchurch Street, London, E.C.3, offer menthol crystals, agar agar, camphor, etc.

Roots, seeds, leaves, barks and herbs grown and produced in Holland by V.N.K. are available in the United Kingdom from F.A.B. PRODUCE, LTD., 87 Regent Street, London, W.1.

Camphor, menthol and papain are among the botanical and other medicinal raw materials of which stocks are held by H. FRISCHMANN, 62 Fenchurch Street, London, E.C.3.

JOSEPH FLACH & SONS, LTD., 140 Falkland Road, Harringay, London, N.8, specialise in medicinal and culinary herbs, spices and powdered drugs.

M. HAMBURGER & SONS, LTD., Plantation House, Mincing Lane, London, E.C.3, are direct importers of acacia, tragacanth and other gums.

JOHN KELLYS (LONDON), LTD., 24 Old Broad Street, London, E.C.2, offers crude drugs, spices and gums.

The V.B. brand block liquorice juice is marketed in this country by MACANDREWS & FORBES, LTD., 2 Caxton Street, London, S.W.1.

Bentonite and diatomaceous earth are among the specialities of PRODUCTION CHEMICALS (ROCHDALE), LTD., 32 Deansgate, Manchester, 3.

Belladonna, henbane, foxglove, peppermint and lavender are crops actually grown in Britain by WILLIAM RANSOM & SON, LTD., Hitchin, Herts.

Senna and rauwolfia are specialities of JOHN RONALDSON & CO., LTD., 3 Crooked Lane, London, E.C.4.

Shellacs, gums and waxes, including the Swanlac brand Whitelacs are obtainable from A. F. SUTER & CO., LTD., 15 Philpot Lane, London, E.C.3.

Services

All types of insurance policy for the chemist are arranged at "maximum cover; minimum rates" by the CHEMISTS' MUTUAL INSURANCE CO., LTD., 4 Queen Square, London, W.C.1

Printing in letterpress and lithography is undertaken by THE HAYCOCK PRESS, LTD., Neate Street, Camberwell, London, S.E.5.

Tablet-making facilities to manufacturers and pharmacists are offered by ARTHUR H. COX & CO., LTD., Brighton, Sussex; H. & T. KIRBY & CO., LTD., Newman House, Belton Road, Willesden Green, London, N.W.2; and THOMPSON & CAPPER, LTD., Speke, Liverpool, 19.

Deliveries of ethical proprietaries to pharmacists are undertaken within the metropolitan area by WM. MARTINDALE WHOLESALE, LTD., 14 Bruton Place, London, W.1; in North-east England by MAWSON & PROCTOR PHARMACEUTICALS, LTD., Low Friar Lane, Newcastle-on-Tyne, 1, and in the greater London area by W. SUTTON & CO. (DRUGGISTS' SUNDRIES) LONDON, LTD., Horseshoe Lane, Enfield, Middlesex.

Assistance to manufacturers in protecting the retail prices of their products is offered by the PROPRIETARY ARTICLES TRADE ASSOCIATION, 43 Gordon Square, London, W.C.1.

Packaging Adjuncts

Orion brand ampoules, manufactured by the Hungarian Trading Co. For Instruments, are available in Britain from BIDDLE, SAWYER & CO., LTD., 4 Grafton Street, Piccadilly, London, W.1. The range includes round and flat-bottomed types.

Comprehensive service to users of collapsible metal and plastic tubes is offered by UNIVERSAL METAL PRODUCTS, LTD., Salford, 6, Lancs, who offer to test customers' products without charge before suggesting a suitable tube.

Polythene bottles and jars from stock are offered by FIBRENYLE, LTD., 157 Dukes Road, London, W.3.



The CHEMIST AND DRUGGIST

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Luxury Fare

ONCE again we go a little outside our normal menu to provide a rather richer feast for the pharmaceutical connoisseur.

Hors d'œuvre of the meal is an illustrated account of how Northern Ireland has found a practical solution, adapted to her economic circumstances, of a two-fold problem of providing laboratory facilities for her citizens.

To label any of the follow-up courses as "main" might be a little difficult, but historical aspects, traditionally a feature of *C. & D.* Annual Special Issues, are certainly again well to the fore. Pride of place must go, perhaps, to an authoritative treatise by two distinguished American historians on a subject that must surely have an equal interest on both sides of the Atlantic: the place of old English patent medicines in United States medical and pharmaceutical history.

Advantage has been taken of the fact that the tercentenary of William Harvey's death fell within the month to present an account, by the most eminent authority on the subject, of his contribution to the knowledge of the circulation of the blood, and we have been fortunate in securing, through the good offices of Ciba, A.G., Basle, Switzerland, a handsome reproduction in colour of the painting of Harvey by Janssen in the library of the Royal College of Physicians, London.

The universal use today of the clinical thermometer at the sick person's bedside is, in another illustrated review, shown to have come about, like so many other usages now taken for granted, through the persistent advocacy of enthusiasts in the face of belittlement or hostile criticism. Another writer recounts the financial embarrassments encountered by pioneering philanthropists who, in their own small way, anticipated in Soho the provision of medical services now guaranteed by the State to all its citizens.

We have not forgotten that the pharmacist is a practical man who likes to know all he can about the goods he handles. A little of the economic background is filled in to the encroachment of rayon and other modern dressings on older types, and an outline is given of the manufacture of that comparative newcomer to chemists' sundries shelves: toilet tissue. Vitamin D₃, a commodity that has sprung into considerable prominence comparatively recently, is discussed both in its general chemical aspects and in relation to its manufacture at a new works in Middlesex.

Photographic chemists will doubtless find of special interest value a colour section bringing up to date the review of methods of colour photography which we published three years ago.

American "invaders" of the pharmaceutical industry in this country have, by setting up manufacturing plants here, widened and changed permanently the scope of the pharmaceutical industry in Britain, and it is right that something more factual than hearsay should be known about their antecedents by British pharmacists. That is a gap in the knowledge we have made an effort to fill. Our concern has been to give information and keep out of controversy, but it is fair to point out that, with the majority of the companies concerned, the profits made in Britain from both home and export sales are "ploughed back" into the British concern and not "extradited" to America.

Intending visitors to the British Pharmaceutical Conference in September may enrich their visit by regaling themselves on the paragraphs in which we penetrate a little below the generalised glamour that the name Bristol is apt to conjure up. Incidentally we take readers on a conducted tour of the premises of one of the oldest drug houses in the country.

Those dishes, then, plus a few *bonnes bouches* and condiments, and not forgetting the nourishment provided by the very numerous announcements of advertisers, make up a repast which we hope will be to the general liking of our readers.

The Educational Drift

IT seems to us—*pace* Mr. J. C. Hanbury—that the most significant remarks made by any of the speakers at the Evian congress of the Franco-British Pharmaceutical Commission recently (*C. & D.*, June 22, p. 662) were those made on education.

The subject, not specifically on the agenda, was introduced by Mr. Pierre Martinot, Paris, in his metaphor of the three marital unions which he said pharmacy had contracted, only to see each of them end in divorce. From the third "spouse" (the pharmacy professors) had come the disappointment that, so far from getting from the colleges young qualifieds who knew their job, pharmacists were receiving instead entrants whose real training only commenced when they began their employment in the shop. If that be true in France, where—as Mr. Hanbury in another intervention suggested—Professor Guillot seems to have shown that the bias in pharmaceutical education is opposite to that which obtains in Britain, how much more acute must be the disappointment of "retail" pharmacists in this country when they take on newly qualified staffs today. On this side of the Channel, as Mr. Hanbury "suspected," the bias is undeniably towards hospital and manufacturing pharmacy, and Mr. W. J. Tristram, with all his inside knowledge as a member of Council of the Pharmaceutical Society of Great Britain, confirmed the "suspicion." He said, with an irony that drew forth a chorus of "Oh's," that he had been led to believe there was a widespread feeling in Britain that the present educational policy of the Society "was not particularly applicable to retailers' needs." He could not believe there existed any such prevalent feeling since, if there had been, it would have shown itself in a contribution by a British retail voice at the congress. As it was, the only retailer who made any

reference to the matter was Mr. Martinot in his original "three marriages" theme.

On the other hand both a French and a British professor put into different words the same profoundly significant challenge to practising pharmacists. Professor Espagnol said that the teachers did not know exactly what the profession wanted, and Professor Macdonald that, if pharmacists would state clearly what they wanted, there was every desire to meet their wishes.

What is the moral? Two inferences, at least, may be drawn. One is that in France the professors without benefit of policy subcommittee, and in Great Britain the professors with that advantage, are reshaping—as they must—the course of training they provide so that the product shall not be a type of pharmacist who is out of date before he starts. In ignorance, like the rest of us, of what the future has in store, they are floundering about without being told even what the

profession wants. That guidance they have every right to have, and in its absence any criticism of their efforts is unfair.

In Britain there is a second moral. To quote Professor Macdonald again, the policy subcommittee has proposed some "revolutionary" changes that have "not yet been disclosed." In default of any positive guidance from the retailers (who are still the bulk of the Society's membership) the changes may and probably will confirm and accentuate the present bias towards hospital and manufacturing pharmacy. So far the only retail voice that has been raised on this side has been that of Mr. Allen Aldington, who is now "muzzled" under the doctrine—spurious, we think, but always sheepishly followed—of the Council's "collective responsibility." Criticisms, it is true, are heard in private conversation. But such criticisms are *sotto voce*. It is time someone spoke up boldly.

Correspondence

Letters when received must bear the name and address of the sender, not necessarily for publication. The Editor does not hold himself responsible for the views expressed.

Time to Clear

SIR,—In notifying on June 7 a price reduction in Distaqueine-V Sulpha we stated incorrectly that credit to cover that reduction would be allowed on stock held at close of business on Saturday, June 8. The reduction became effective on June 10, and all EC10 prescriptions dispensed during the following four weeks are being priced at the original rate. In that way the retailer has been given a reasonable period in which to clear stocks, and no credit claims are being accepted.

ALLEN & HANBURYS, LTD.
London, E.2

Rates of Pay

SIR,—Qualified retail pharmacists are more difficult to get these days, especially any who are experienced in staff control, business routine and practical pharmacy. They are worth over £20 per week. Good counter staff (boys and girls) are also very scarce, especially in large towns where plenty of work is available in factories at shorter hours with Saturday holidays and better pay. I know several young ladies who demand and get £7 to £8 per week quite easily, plus bonus and overtime, with staff canteen, welfare and social clubs all provided. How then can one expect a qualified and experienced manager for less than £1,000 per annum?

ELDERLY PHARMACIST

Manufacturers Please Note

SIR,—During twenty-seven years in pharmacy I have many times had to train new staff because, as every pharmacist knows, counter girls come and go. The task is not made easier by the manufacturer who fails to state on his goods either the price or some indication of the size or contents. We pay £3 3s. a year for an up-to-date price list, and we have stock cards on the shelves, but all those efforts at efficiency are brought to nought by our being frequently unable to identify the size of the less-familiar proprietary pack. Every sales manager ought to

have a three-year apprenticeship on the counter side. Then he would make every effort to follow my advice.

Bridlington A. E. VARLEY

"Weighting" for Dartford Pharmacists

SIR,—Arising from a recent industrial court award to another Whitley functional committee, the staff side of committee C has claimed that a weighting should be awarded to hospital pharmacists in the Dartford area. That has now been agreed in the following terms:

"As from April 1, 1957, weighting shall be paid to non-resident pharmacists and student pharmacists covered by Committee C of the Pharmaceutical Whitley Council, on salaries up to and including £1,230 per annum employed in the area of Dartford Borough and Dartford Rural District: the weighting to be as follows:

Under 21 years ...	£10 per annum
21-25 years ...	£20 per annum
26 years and over ...	£30 per annum

The appropriate notice is now being issued to hospital management authorities, and pharmacists and students affected should make application to their own employing authority.

HERBERT S. GRAINGER, *Secretary,*
Staff side, Committee C
London, W.C.1

Pharmacists and Commissions

SIR,—May I reply to your numerous correspondents? I am *not* military-minded, but

1. It is a fact that doctors, dentists, opticians and female nurses are commissioned right away in the Royal Army Medical Corps, and chemists are not.

2. Chemists who work in hospitals, path. labs. or large base stores, *may* be given lieutenant rank, but in smaller units are usually sergeants; there are lance-corporals and privates.

3. Qualifications do not count without practical ability to control staff and carry out discipline as is expected of warrant officers and officers.

4. I do agree that a civilian pharma-

ceutical staff for hospitals and dispensaries (as is already available in the Navy) is essential for the R.A.M.C. and Air Force. The Pharmaceutical Society or Ministry of Health should insist on that. National-service pharmacists should not join medical services. In any other unit they would be recognised as educated men worthy of commissioned rank.

EX-MAJOR

How it Appears to a Layman

SIR,—As a regular reader of THE CHEMIST AND DRUGGIST, I read the correspondence columns with interest. The letters about certain headache tablets being sold in corner shops and barbers and the like are illuminating. It would appear that some chemists think that they should be the only ones to sell medicines. The letter from a Mr. Gretton was typical. He appears to object to a hairdresser selling medicines, but how many chemists sell hair cream, razor blades and even razors? Regulations appertaining to the dispensing of prescriptions and the dealing in Dangerous Drugs and the like reserve that work to the chemist. Why, then, should the chemists, by direct and indirect means, try to monopolise all the trade? Not that the monopoly is confined to medicines. I see there are even a "chemists only" tooth-brush and corn plaster. Whilst I have sympathy with the chemist, more often than not the server of the "chemist-only" preparations is not a chemist but a young girl who, a few weeks before, was in a school uniform. We know that few chemists deal only in medicines, but encroach on goods usually sold by barbers, gift shops, stationers, pet shops, etc., etc. Why do not chemists try to be realistic? If they are not prepared to have only qualified chemists as counter hands, and to cease dealing in haberdashery, then it is unrealistic to advocate a policy which, if carried to its logical conclusion, would ruin most of the chemists in the country.

T. TWIG

[Mr. Twig asked that his address should not be published—EDITOR.]



A DUAL-PURPOSE LABORATORY IN BELFAST

SERVICES TO THE STATE
SERVICES TO INDUSTRY

If one could suppose the functions of the Government Chemist combined with those of Scotland Yard's forensic laboratory, the result would represent (on a scale, of course, commensurately smaller in relation to the smaller territory served) an approximately true picture of the recently established laboratories of the Department of Industrial and Forensic Science, Northern Ireland Ministry of Commerce, at Belfast. The Laboratories, in the housing of which the interior of a warehouse building at 5-11 Verner Street has been completely remodelled, provide a variety of scientific services for Government departments, local authorities, the Police, industrial and commercial undertakings and indeed anybody whose need falls within its sphere of activities.

On the industrial side, in addition to laboratories for the investigation of a wide range of problems, the Department provides a most useful library and information service on scientific and technical problems. Its reference books cover a fairly wide range of scientific and technical subjects, but the library is devoted especially to works on applied science that are not readily available elsewhere in Northern Ireland. Librarians and members of the staff of industrial enterprises in Belfast and the six counties visit the library to consult the librarian (Miss A. B. Smyth) and to refer to the books on the spot, though in exceptional circumstances books are sent out on loan. A valuable facility provided by the library is its periodical section, where there are set out on racks more than 200 technical periodicals in the fields of adhesives,



The laboratories' reference library, well furnished with technical periodicals as well as with a rapidly expanding array of scientific and technical books, is at the disposal of industrial users.

agricultural science, biology, ceramics, chemistry, corrosion research, engineering, food technology, fuels, marine biology, mechanical handling, metallurgy, packaging, photography, plastics, textiles, etc. Officers are sent out from the laboratories to seek information and give advice on problems of water supply, sewage and industrial effluents, packaging, lubricants, fuels and many other industrial problems.

The laboratories proper are in two main divisions. On the first floor are the forensic and on the ground floor the industrial laboratories. The forensic division is further subdivided into specialist sections on chemistry (including the analysis of organs of the body, examination of paint fragments, glass fragments, etc.); a biological section (primarily concerned with blood typing, identification of hairs and fibres, timbers and bacteriology); and a photographic section that may be called upon to serve either of the others but has its own specialities, particularly ballistics, document examination, etc. In view of the character of much of its work, the chemistry laboratory has as part of its equipment an outsize refrigerator in which organs under examination may be stored. One room is set apart for spectrographic analyses, and it is wired to isolate it electrostatically from the remainder of the laboratory. There is a separate balance room, and a good start has been made on a "tablet file" to assist in the identification of causes of poisonings. In charge of the chemistry section is Dr. W. H. D. Morgan.

Features of the biological section include a punched-card file of timber species and varieties, several hundred in all,



The facts given in a shooting incident are, for various reasons, not always as accurate as they might be. A staged reconstruction, as shown in the illustration, helps to reveal inconsistencies.

enabling any wooden object (or even splinters or sawdust) to be identified with rapidity and certainty; and a growing reference file, organised by the staff themselves, of hairs, seeds and vegetable and synthetic fibres. Bones have often

to be identified as human or animal, and as a first step towards establishing a bone library a complete cat specimen has been mounted—with, it may be said, great artistry and skill—within the department. Microscopy enters largely into

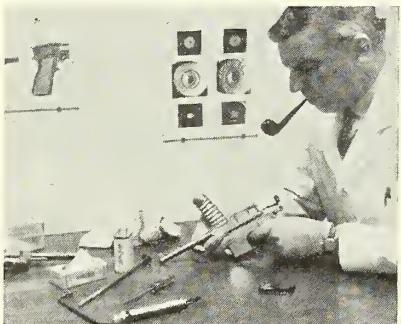
SCIENCE IN THE DETECTION OF CRIME



In the chemical analyses of paint, metal, glass, etc., considerable use is made of the spectrograph.



If any question of authenticity arises in a document a photographic copy is essential. It may often be revealing.

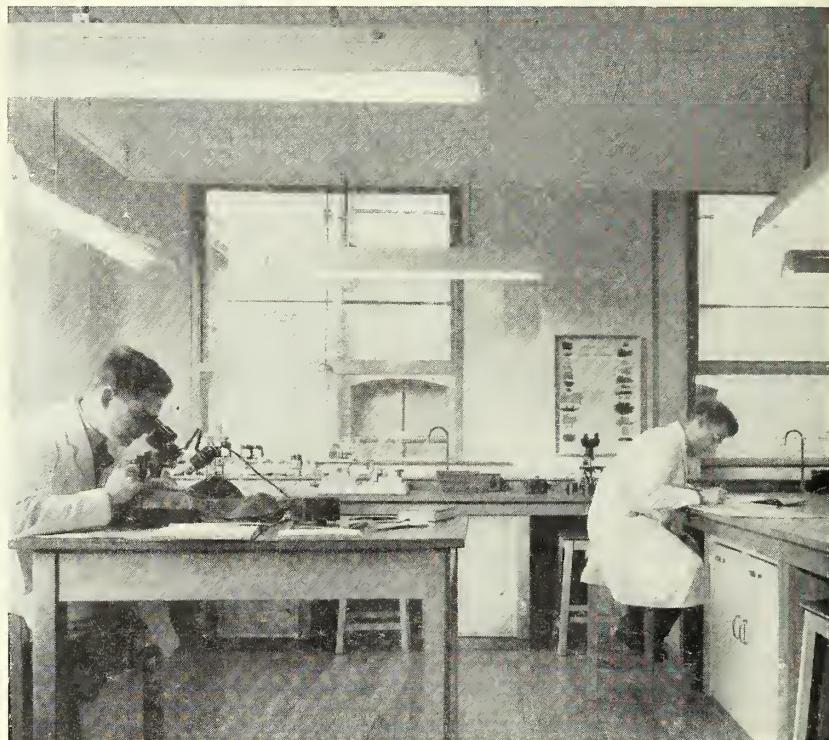


Firearms examination is one of the functions of the laboratories. In the picture a Mauser pistol is being tested for mechanical efficiency.



Often stolen articles such as bicycles, typewriters and motor vehicles have their serial number removed to avoid identification. The picture shows a typewriter being treated to "restore" the number.

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The forensic biology laboratory deals with the identification of bloodstains, fibres, hairs and botanical tissues and with other biological aspects of forensic science.



The forensic chemistry section deals with the isolation and identification of organic and inorganic poisons, examination of paint, glass, metals, explosives, alcohol in body fluids, and origins of fires.



In the industrial analytical laboratory a member of the scientific staff is seen carrying out a precision fractionation of an industrial solvent used in the textile trade for a crease-resisting process. On the same bench is an electro-conductivity experimental apparatus for the investigation of the corrosive properties of water supplies.

the identification of animal and vegetable material, making an efficient microtome a matter of the highest importance. Mr. D. McVitty, the head of the section, was formerly at the North-western Forensic Science Laboratory at Preston, Lancs.

In its turn the photographic section has a number of noteworthy features. Entry to the dark room, for example, is through light traps, without doors. The section's head, Mr. J. Conway (incidentally one of only two of the laboratories' staff of twenty-four who are not either born in Northern Ireland or have family associations with the six counties) gained much of his professional experience at New Scotland Yard. Practically all photographs taken in the department are taken with a 5 x 4 in. all-purpose M.P.P. camera, though a Leica is available if required and there is apparatus for making photo micrographs (often necessary as evidence in questions such as whether a shot was fired from a particular weapon). Missile marks, indeed, are an important study of the department's staff. Another object on which they have often to exercise their scientific ingenuity is obliterated serial numbers of bicycles, motor cycles and cars, which are restored by appropriate treatment.

One small department on the first floor that is not connected with crime is the department of marine biology, whose special function is the study of fresh and sea fish, both of which are commercially important to the territory. "Tagging" of fish to provide clues as to their habits and movements is one of the minor activities of the department.

In the industrial division on the ground floor there are three principal laboratories under the general supervision of Mr. J. F. Morgan. The first is concerned mainly with examining water samples on behalf of local authorities, industrial undertakings, catchment boards or others. A second laboratory is set aside for the examination of bulky materials. In this room the ratio of floor space to bench

space is high, the free floor areas being eminently useful when *ad hoc* assemblies of apparatus for non-routine investigations have to be staged. The third room is solely concerned with sampling road materials, whether for suitability to achieve their intended purpose or for compliance with buyers' specifications. The technique is to separate out the bituminous materials with solvents and pass the residual "aggregates" through standard sieves so as to establish the proportions of material of given dimensions.

Throughout the Department the benches and services have been intelligently planned and efficiently constructed. Heating is by ceiling panels, which have the twofold advantage that they do not take up floor area and that individual panels may be removed to inspect pipes or lagging behind them. The bench "services" (water, gas, vacuum) are carried on angle-bracket mountings under the benches, and wide use has been made of polythene tubing. Under-bench cupboards and drawer nests are interchangeable. The stockrooms are unusually commodious and well filled for an institution of the size of the Laboratories, the reason being that the reagents have to come to Belfast by sea, and there is no ready wholesale supply within the city. The administrative offices are equally well appointed. That of the Director (Mr. A. J. Howard, M.A., F.R.I.C.), is a well-lit blue-carpeted corner room large enough to be used at times for conferences. From his desk Mr. Howard co-ordinates and controls the varied activities of the Laboratories and maintains contact with the various "employers"—Civil Service, Local Government or Private Enterprise — for whom he has, whether on a routine or an occasional basis, to carry out investigations or give advice. Northern Ireland is fortunate in having so modern, well-equipped and versatile a laboratory service at its command. As time goes on its activities and importance are certain to expand far beyond their present beginnings.

LONDON'S EARLIEST HEALTH CENTRE

"Long, unequal struggle" against increased drug costs—an acute problem since 1839

ON June 6, 1774, with charitable hearts a group of eighteen business men sat down to a meeting in the Adelphi Tavern, London. Under the chairmanship of John Lind and with the literary giant Dr. Samuel Johnson among their number, their purpose was to establish a dispensary as a medical centre for the poor and needy of Soho as "hospitals in general do not seem so well calculated for the reception of the sick as of the wounded."

Taking as its objective the early treatment of disease, the dispensary established itself on a framework of outpatient treatment and visits to the home as a means of doing the greatest good with resources which, in a charitable organisation, were bound to be a limiting factor. "A house will be taken," it was resolved, "for a dispensary where the apothecary who is to dispense the medicines directed by the physicians and to receive letters of recommendation from the Governors, shall constantly reside." So it was that the Turk's Head Tavern at 9 Gerrard Street, whose commodious cellars were to prove of value for the storing of galenicals, was purchased and the Westminster General Dispensary founded.

Examination of the original minute books has enabled the story behind the news of the Dispensary's closing (see C. & D., February 16, p. 186) to be unfolded in a fascinating tale of the battle against disease in days when Empire building claimed more of the glory.

A home maternity service was obviously thought superior to a hospital confinement, for the charity considered its plan "by no means compleat if it did not comprise lying-in women, to whom this method of relief is so much better adapted than hospitals. The distress of an affectionate woman obliged to leave her husband, children and friends at a time when she so much wants their affection, consolation and good offices can only be conceived by those who are themselves wives and mothers."

Eminent and experienced physicians were appointed to attend patients and for an annual contribution of one guinea a subscriber was made a governor and entitled to have one patient upon the list in physic, surgery or midwifery. For two guineas he was made a governor with the entitlement of two patients on the list; for ten guineas a

perpetual governor with one patient constantly on the list and for a twenty guinea donation a perpetual governor with two patients constantly on the list. By such a system sufficient funds were built up to enable the Dispensary to open in August 1774, with Dr. John Millar as physician, Mr. Edward Ford as surgeon, Mr. John Marshall as apothecary and Mr. Robert Bland as man-midwife.

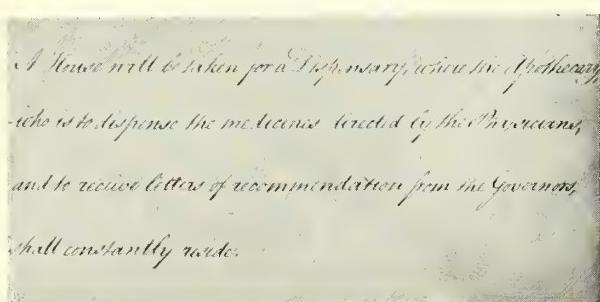
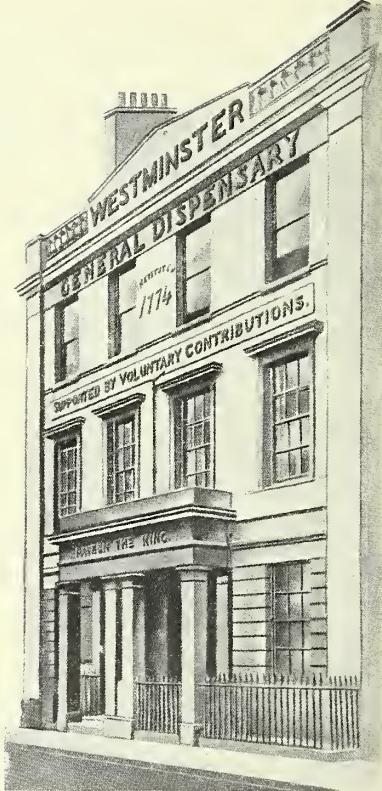
The apothecary was instructed to refrain from private practice as the proper execution of his duties would require his full time. He was to instruct in the business of pharmacy such pupils, apprentices or assistants as might be appointed by the committee and was to take care that the apprentices attended with decency, diligence and circumspection to their duties. He was urged to be "careful that such medicines as are required to be kept in the dispensary be always in readiness and that they, as well as all extemporaneous prescriptions, be prepared with the utmost fidelity."

Penalties for Recalcitrant Patients

During the first month forty-four patients attended the dispensary; by November the monthly total had risen to eighty-four. Of those, seven were suffering from "consumption," nine from "putrid remitting fever, attended in some cases with violent bleeding and in others with delirium and convulsions" and four with rheumatism. Twenty-eight attended at the dispensary and sixteen were treated at home and there was a note to say that no antimonial medicines had been prescribed for any patients suffering from fevers. Recalcitrant patients—and there were many who would not take the medicine supplied—were dealt with by being excluded from further benefits should they absent themselves for more than two weeks.

The first five months produced 207 patients and the returns were proudly printed in the *Gazetteer*, the *London Evening Post* and *Lloyd's Evening Post*. Filled with enthusiasm a deputation went to the management of various theatres to arrange benefit plays and clergymen were asked to preach sermons for the benefit of the institution. The first annual report to September 4, 1775, revealed that 1,689 patients had been admitted of whom 1,134 were totally cured, 129 were given the "utmost relief," and 328 were still under care.

In the purchase of medicaments the authorities were business-like and required that olive oil obtained from



More leisurely days are reflected in the copper-plate writing of the original minute book which is a treasured possession at Gerrard Street.

Messrs. Keeling & Reeds should first be sampled and approved by the medical staff. The apothecary was required to keep a wants book, and items had to be approved by the doctors before being ordered. Nor were the incoming goods permitted to be opened except in the presence of one of the physicians.

It was not unusual for the apothecary to cross swords with other servants of the dispensary and in 1784 Mr. Barron, who was then the apothecary, charged a William Napp with various irregularities, for which Napp was summarily dismissed. Barron's successor, Mr. M. Coman, had a much more alarming experience when the dispensary messenger was accused and convicted of fraudulently obtaining corpses. Some years later, in 1830, yet another messenger was found "totally inadequate from inebriety to give rational answers to questions put to him"; a search of the dispensary led to the finding of a dead body.

Ill-paid but Never Dull

Although life as an apothecary might have been ill-paid it was certainly never dull. So far as dispensing was concerned it was for him a five-hour day; dispensing sessions were strictly limited to 8-9 a.m., 12-3 p.m. and 6-7 p.m. An increase in the drug bill to £63 for the first quarter of 1839 brought the suggestion that saving might be effected if more preparations were compounded rather than bought ready-made. It was also recommended that the apothecary should be a licentiate of Apothecaries' Hall. Messrs. Gill & Mason were included in the list of suppliers to the dispensary in 1846 and, with drug costs still rising, medical practitioners were requested to save the charity the cost of leeches so far as possible.

In April 1859 the resident medical officer was reprimanded for fighting with his lodger on a Sunday morning. Inquiry by a member of the committee about the sleeping accommodation at the dispensary revealed that the medical man had to make his bed on a table. The matter was settled peremptorily: lodgers were banned! . . . but the medical officer still had to sleep on the table.

For keeping a patient waiting over an hour for a prescription the dispenser, a Mr. Mosley, was in 1859 called to apologise for "acting in an unfeeling way." Mosley said that the delay had been occasioned because the prescription was not written on a proper Dispensary form.

Uniformity of prescribing was the aim in 1869, when an order went out to physicians that, so far as possible, they should order Dispensary stock mixtures. Concentrated infusions were not in any circumstances to be included in any drug order. Chronic patients were not considered fit subjects for the charity, nor did dispensary funds permit the medical officers to order more than half a pint of cod-liver oil per patient. Despite those appeals, drug costs became increasingly a thorn in the flesh of the charity, and it was decided to appoint a committee to investigate costs. It was also decided to advertise for a dispenser, and from seventeen applicants for the post a Mr. Leslie was appointed on the condition that he passed the examination for the compounding of medicines within a month. Leslie, however, failed to pass the examination at Apothecaries' Hall, and in December 1887 resigned before being able to put into effect any of the recommendations the drug costs committee had made. The committee had examined the price lists of various wholesale firms, but had found that the charity's chief suppliers, Messrs. Hearon, offered keen enough prices. They recommended, however, that a lock should be put on the poisons cupboard, with keys available to only the dispenser and the resident medical officer. The average annual expenditure on medicaments had been £150, but in 1887 the cost rocketed to £250, which the committee after discussion attributed to expensive prescribing habits. As if to add to the financial worries of the organisation the year ended with the discovery that a servant of the charity had embezzled £200 of the funds.

1888 began a happier era so far as drug costs were concerned. Miss M. Buchanan, who held the Major qualifica-

tion of the Pharmaceutical Society, was appointed dispenser. As the first member of the Society to be associated with the Dispensary, Miss Buchanan performed her duties so well that after six months she had her salary raised to £45 per annum, and within another six months to £50. In all her work Miss Buchanan was precise, and she scored a resounding victory for pharmacy in a feud with one of the doctors who had prescribed an overdose. It was with some regret that, after two-and-a-half years' service the committee accepted her resignation. At the annual meeting earlier it had been possible to announce to the Press, which was admitted for the first time, that 5,204 patients had been treated during the year and that great economy had been effected in the drug bill.

The Secretary reported, That Edward Howe, Messenger of this Charity, was on the first instant committed to John Hall, Justice of the Peace, on suspicion of fraudulently obtaining a corpse from Mr. Bradford an Apothecary of Grafton Street, Litchfield Street, and shipping and selling it to Mr. Hunter of Leicester Square, and on the fifth after a further Examination before the Justices at the Registration Office in Litchfield Street, was fully committed and the parties were bound over to prosecute him.

Resolved

A messenger of the Charity is bound over for prosecution on a charge of fraudulently obtaining a corpse. Incidents such as that formed the background against which the Dispensary operated.

Mr. F. H. Cox, another holder of the major diploma of the Pharmaceutical Society, was appointed and immediately official backing was given for his suggestion that the porter should dust the dispensary bottles. A proposal that he should train a pupil at the dispensary during his hours of attendance was not, however, so enthusiastically received. Cox explained that he proposed to make certain infusions and tinctures which had previously been purchased from Messrs. Hearon, Squire & Francis, and that the new plan, while benefiting himself as a teacher of pharmacy, would also benefit the institution in the saving of drug costs. The request was eventually granted, subject to three provisions: that Cox should always be present while his pupils were at the dispensary; that only one pupil should be allowed at a time; and that Cox should provide the necessary apparatus at his own expense. The reluctance to approve what would seem like a progressive idea meant that Cox had made enemies of certain officials, and it was not long before evidence was brought before the committee that a pupil had been left in the dispensary without supervision. Cox received a rebuff from the secretary on that account, but was promptly able to redirect it by proving that the alleged unsupervised apprentice was in fact a duly qualified chemist who was acting as his deputy.

Provision of a spittoon in the Dispensary waiting rooms began in 1893, as the outcome of a suggestion in the house surgeon's report of that year: influenza had been the major epidemic of the year, with several cases of scarlet fever and English cholera.

Permission was asked for the purchase of Burroughs Wellcome & Co.'s cod-liver oil and malt "which can be given in some cases where ordinary cod-liver oil cannot," and there is mention of Macfarlan, Coleman Street; Winter, Goodge Street; and Maw, Aldersgate, as the Dispensary's sources of surgical appliances.

Money Worries

1894, with a fall in subscriptions from £195 to £186 and the need for extensive property repairs looked like being a disastrous year for the Dispensary when a bequest of £500 from Mr. Horatio Rymer enabled plans for the repairs to be made with confidence that they could be paid for. In October, however, that confidence was found to be misplaced. Rymer had over-estimated his property, and

the residual estate upon which the charitable legacies were secured proved to be worth nothing. Reserved consols worth £650 had to be sold to meet the exigency, and the treasurer (Mr. F. Blackwell), an ardent worker who later became chairman, loaned £100 of his own money to tide the Dispensary over the difficulty.

The Tinctures were Non-alcoholic

Following the resignation of Mr. T. Trask in 1897 there was a quick change of dispensers, Mr. A. H. Williams resigning in 1898 to be succeeded by Mr. G. W. Proctor, a holder of the Pharmaceutical Society's Major diploma.

Proctor in turn was succeeded in 1900 by Miss C. Nicol, M.P.S., one of whose major tasks in a four-year association with the Dispensary was to assist in revising the Dispensary Pharmacopœia, one hundred copies of which were printed. Tinctures used were non-alcoholic—possibly with the dual purpose of economy and of discouraging those inclined to tipple. Prescriptions which might appear unusual today included *mistura boro-benzoata* with gr. 10 of ammon. benzoatis, gr. 10 of acid boric, min. 30 of *tinct. hyoscy.*, and *infus. buchu* to 1 fl. oz., and *mistura diuretica*, with potass. acet. gr. 20., *tinct. digitalis* min. 5, spt. juniper min. 30, and *infus. scoparii* to 1 fl. oz.

A reflection of the social hardships of the time is mirrored in a request for three weeks' leave of absence made on behalf of the house porter. Cookman, the porter, it was stated had not been granted a holiday for eighteen years yet it was only after some discussion that permission was granted "on the distinct understanding that it was at the special request of Dr. V. Matthews and was not to be taken as a precedent, the feeling of the meeting being that three weeks was too long a time for a house porter to be absent from his duties."

A notable event in the term of office of Mr. W. Roberts who was dispenser from 1904 to 1908, was the amalgamation of the Westminster Dispensary with that of St. George's and St. James'.

In July 1908, Messrs. Hearon, Squire & Francis, who had allowed 10 per cent. discount to the Dispensary, discontinued that practice, submitting a new net drug price list with monthly terms and a discount of 2½ per cent. Thereupon the Dispensary resolved to purchase by contract, and tenders were invited from Hearon, Squire & Francis; John Bell & Co.; Allen & Hanburys, Ltd.; Corbyn, Stacey & Co., Ltd.; Hodgkinson, Prestons & King; and Burgoine, Burbidges & Co., Ltd., the contract going to John Bell & Co.

A Dispenser Defends his Integrity

In 1910 the house surgeon (Dr. R. Farrant) reported that it was his firm belief that the patients were not obtaining full benefit of the prescriptions ordered them. His opinion was that only part quantities of drugs were going into the medicines made up for them by the dispenser (Mr. J. G. Barclay). Mr. Barclay strongly challenged the slur on his integrity and assured the committee that he dispensed strictly according to the prescription, a finding that was upheld at a later meeting of the medical committee. Barclay resigned not long after, and was succeeded by Mr. W. H. Gordon, M.P.S., Ph.C. By 1916 Gordon was leaving most of the work at the Dispensary to a deputy (Mr. Pearce), and on Gordon's resignation Pearce stepped into the vacant situation.

The first step to royal patronage came in 1790, when the Prince of Wales subscribed £100. In 1899 Queen Victoria donated £10 10s., and in 1901 King Edward VII became a patron.

Breakdown of the Dispensary's treatment costs reveals a pattern that would arouse envy in the heart of any Executive Council. In 1903, 7,288 patients were treated at an average cost per patient (not per prescription) of seven-pence. In 1908 the cost was reduced to fivepence per patient, with 9,759 treated. 1919 statistics showed 7·84d.

per patient for surgery costs, 3·65d. for domestic costs, 11·48d. for salary and wages, and an administrative cost of 2·9d.

Even by 1919, however, the numbers attending the Dispensary had begun to dwindle, and by 1946 the attendance was at 3,339, only a third of what it had been in 1909. There appeared to be a revival in 1948, with 4,087 patients treated, but as the treasurer (Mr. R. W. Collard) said in his report for that year, much of the credit for the increase had been due to the popularity of Dr. R. K. Haslam.

In 1917 Miss C. M. D. Brunton, Walthamstow, an Apothecaries' Hall-trained dispenser, took over and, with a remarkable record of service through forty years, dispensed the last prescription on March 29, 1957. "It's like the end of an epoch," she remarked as she closed the door of the neat little dispensary for the last time.

After a long, uneven struggle against increased costs the direct medical aid side of Westminster General Dispensary had become a casualty of the National Health Service.

CALYPSO

J. J. HAYTON

THE juke-box cognoscenti
Say folks have had their plenty
Of rock-and-roll in rhythm,
That swing's lost favour with 'em.
They say that the calypso
Now has them in its grip, so
Let's adapt the craze
To medicine and its ways
And fondling our guitar
Just see how matters are.

Doctor Smith, there's an urgent call
(No, there's nobody ill at all)
Just to tell you you're due at nine
At Harley Street on the picket line.
N.H.S., Oh! N.H.S.
The medicos are out—"Unless . . ."

Down at Dagenham someone rang a bell;
Stopped them working, but strange to tell
A bell at night in our pharmacy
Means OVERTIME for the likes of me.
N.H.S., Oh! N.H.S.
What a life for an M.P.S.

ANTIBIOTICS by the score,
Tranquillisers for evermore,
Every new-found vitamin
How are we going to fit 'em in?
N.H.S., Oh! N.H.S.
Stock grows more as the space grows less.

It's been suggested that there should be
A separate Scottish Society
—N.F.'s written in Gaelic then,
And "halesome parrich" on EC10!
N.H.S., Och! N.H.S.
Awa' wi' shop coats—kill's the dress.

The Shops Bill says we must not work
The Rota asks us not to shirk
Opposing rules—that fact we face
—We're in the wrong in any case!
N.H.S., Oh! N.H.S.
At least jail meals are t.d.s.!

Twopence-halfpenny on a script
Average up—but profits nipped,
Bigger "items," late scripts, tests,
Prices rising, "new-line" pests.
N.H.S., Oh! N.H.S.
—And yet there are worse jobs, I guess.

POST-WAR DEVELOPMENTS IN SURGICAL DRESSINGS . . .

THE devaluation of the £ sterling in 1949 was followed by a rapid increase in world cotton prices. India, Britain's main source of supply of the cotton waste used in making cotton wool, imposed an embargo on exports of the material, and only limited quantities were available from other sources. Dollar shortage limited the importation of American cotton for making gauzes, lints and bandages. The combined effects of those causes on the surgical-dressings industry were serious, and rayon dressings were introduced. They proved to possess advantages (including cheapness) over the cotton ones they largely replaced.

Viscose rayon is one of several types of manufactured cellulose fibre. It is made by a process in which high-grade cellulose pulp is first converted into "alkali cellulose" (sodium cellulose) by treatment with caustic soda. The less desirable hemicelluloses are simultaneously dissolved out and removed. Treated with carbon disulphide, the alkali cellulose is changed to sodium cellulose xanthate, which is transformed into viscose by liquefying it in a weak solution of caustic soda. The viscose is extruded through minute holes, emerging into a coagulating bath as continuous filaments of rayon, which are drawn off. The filaments are either twisted into threads or cut into staple. The threads are made suitable for manufacturing processes by washing to remove all excess of coagulant. The staple may either be used as loose fibres for absorbent "cotton wool," or manufactured into surgical dressings.

Viscose rayon's properties of high absorbency, easy sterilisation, softness, etc., make it extremely suitable for dressings. Used either alone or blended with cotton, it is made up into many varieties. More than twenty items in which rayon may be used are now included in the British Pharmaceutical Codex.

Rayon gauze made solely from viscose staple is much less adherent than cotton gauze to wound surfaces, and is therefore easier to remove. It is also found that, with *tulle gras* made from rayon, the edges do not fray after cutting; consequently stray ends never get embedded in a wound.

A large proportion of the total manufacture of surgical dressings goes for use in hospitals. At one time certain types of dressings were made up as required at the hospitals by nursing staffs but there is today a marked trend towards using ready-made or "prefabricated" dressings designed to give maximum efficiency with greatest economy.

One of the earliest demands in that direction was for ready-made cotton-wool balls. Formerly made up by nursing staffs from 1-lb. rolls of cotton wool, the balls are now available in convenient ready-made packs, thus saving much time and labour. Another example of the trend is the replacement of hand-made by machine-made gauze swabs. In the factory the swabs are manufactured at great speed. Gauze from rolls is fed into a machine that cuts it into the

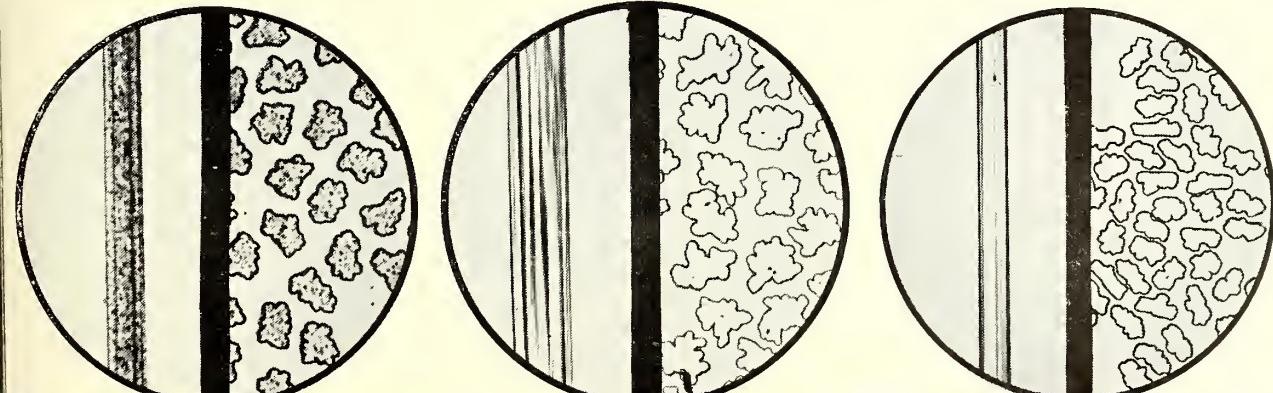
required length and (so that no raw edges are exposed) folds it both transversely and longitudinally into swabs of the desired size. Swabs with marker threads (readily detected in x-ray examinations) are also now being used.

Other types of prefabricated dressing have been developed to meet hospital requirements, and there are now available dressings for a variety of post-operative treatments. One of them consists of a gauze pad with a soft bulky laminated filling, designed so that the pad absorbs approximately seventeen times its own weight of fluid. Thus fewer pads are needed than when all-gauze pads are used. The softness of the dressings is improved by autoclaving, a fact that is readily proved by comparing the thickness of the pads before and after sterilising.

Dressings have also been designed for use after abdominal operations and amputations, or where there is fluid to be absorbed and protective padding is required. The special dressing for those purposes consists of a heavy layer of absorbent, backed with a layer of non-absorbent, cotton wool and enclosed in a tubular woven gauze cover. Sterilising again gives a softer and more spongy product, and the non-absorbent backing layer helps to diffuse the drainage over a wide area of the pad and prevent it from percolating through and soiling bed linen. The pads are made in a range of sizes to meet all likely requirements, and have been found particularly useful for use in ileostomy, colostomy, cholecystectomy, prostatectomy and gastrectomy operations and for amputations of the breast.

Another modern development in the dressings field is the introduction of dressings made from calcium alginate yarn. Alginic acid is extracted from seaweed and converted into sodium alginate. On extrusion into a spinning bath containing calcium chloride the sodium alginate, which is water-soluble, is converted into continuous threads of insoluble calcium alginate. The threads are washed, dried, and collected on a bobbin. For medical use a partially converted calcium-sodium compound is preferred. It is haemostatic and non-toxic, and eventually absorbed into the blood stream. Dressings made from the alginate are, in most circumstances, painlessly removed by dissolving them in water or dilute solution of sodium bicarbonate or citrate. In dressing strips made from alginates the protective alginate film that covers the lint minimises the danger of its adhering to the wound.

Another application of calcium alginate is in dental surgery, where sockets that are liable to bleed may be plugged with alginate wool. The wool may be left *in situ* and in due course is absorbed, the cavity healing without redressing. If desired the dressing may, by dissolving it with sodium citrate or sodium bicarbonate, be removed before absorption takes place, but that is seldom necessary. Alginates have also been used in surgery as absorbable haemostatic dressings in internal cavities.



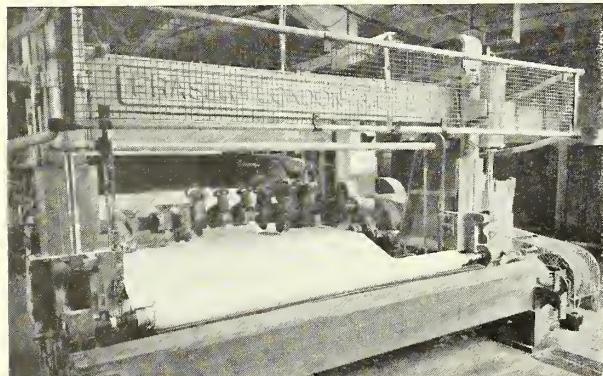
Photomicrographs ($\times 125$) showing longitudinal view and cross section of fibres of (from left) pigment-dulled viscose; bright viscose; and calcium alginate.

RICHARD BENNETT

A TISSUE OF FACTS

HOW TISSUE IS MADE

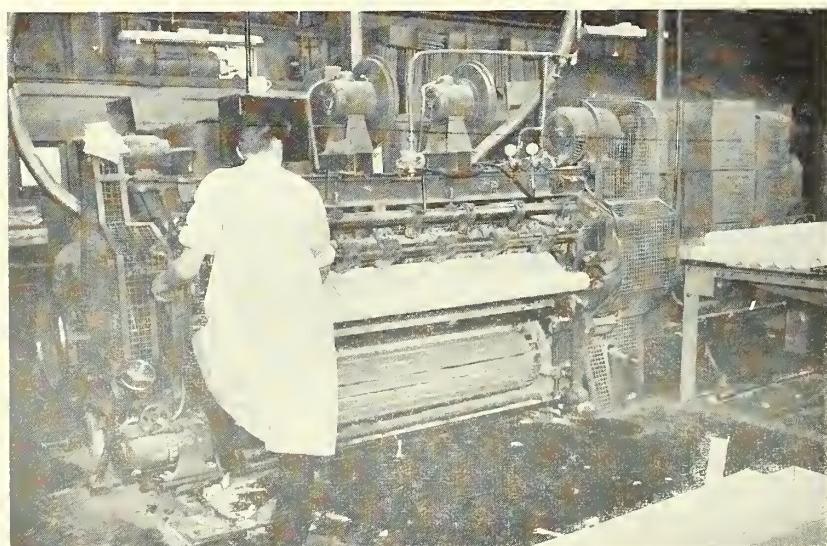
**AN OUTLINE
OF THE PROCESS
BY WHICH WOOD
PULP BECOMES
THE PAPER
HANDKERCHIEFS
TOILET & FACIAL
TISSUES FAMILIAR
TO CHEMISTS AND
THEIR CUSTOMERS**



ABOVE : THE HYDRA PULPER. Feeding-in bales of selected pulp.

LEFT : READY FOR CONVERSION. The manufactured sheet being wound into large rolls known as "jumbo" reels.

BETWEEN : MAKING TOILET TISSUES. Delivered to the conversion department the rolls are slit and cut by automatic machines.



TISSUE is paper — basically the same as the material on which these words are printed; but it is bulkier, softer and more absorbent than other papers — and more difficult to produce. It is, in particular, entirely different from the product popularly known as "tissue paper" in that it is crêped and possesses great absorbency.

When Production Begins

The raw material is wood pulp, and only high-quality pulp can make high-quality tissue. The "tissue of facts" begins, therefore, with the careful selection and scientific testing of the raw material to ensure such qualities as softness, strength and absorbency in the final product. Production begins when bales of selected pulp are fed into a "pulper," where they are broken up and mixed with a large quantity of water. Pulpers are large tubs with rapidly revolving fin-like arms like overgrown electric kitchen mixers. When the pulp and water are thoroughly mixed, the resulting stock (five parts pulp to ninety-five parts water) is drawn off into a storage tank, where a pump keeps it circulating and prevents the fibre from settling.

The pulp in the stock must next be refined. To achieve that end a continuous stream of stock is pumped through high-speed refiners, in which revolving and stationary knives break up any knots, cut the tiny fibres to the right length, and roughen their edges so that they will eventually knit together properly into paper. More water is also added. Both processes — the refining and the dilution — are subject to strict control. Faults in the consistency or quality of the stock can cause variations in the finished tissue. Finally, to complete the preparatory stage, the stock is pumped to a head-box, where still more water is added, giving it a composition of approximately one part of pulp to 200 parts of water. It is now ready to go through the paper-making machines.

The stock from the head-box flows on to a wide, continually moving, endless, wire screen. The mesh is fine enough to retain the fibres while letting the water through. Most of the water is removed in the first few inches of

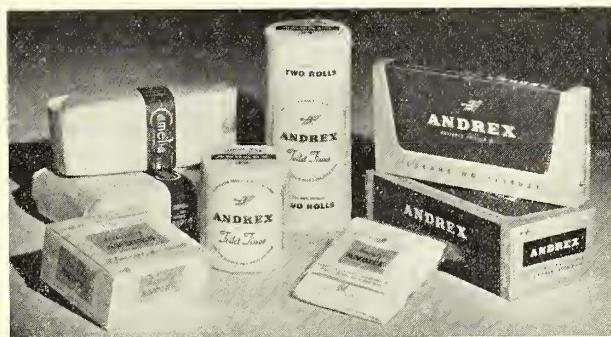
the stock's journey along the moving screen; by the end of it, drainage and suction have reduced the water content to about seven parts to every part of fibre.

"Licking-off" the "Felt"

Meanwhile the fibres left on the surface have been knitting together to make a sheet of wet paper that is "licked" off the wire screen by a "felt" resembling an endless blanket. The sheet travels with the felt through two heavy press rollers, which squeeze out more water like giant domestic wringers, the excess water being absorbed by a second woollen felt that passes through the press at the same time. From the wringers the sheet passes to a drier—a huge cast-iron drum heated by high-pressure steam—and is completely dried as it passes around it.

At that point the sheet is given the characteristic "feel" and appearance that distinguishes crêpe tissue from other papers. A long, blunt-edged metal scraper, called a "doctor," is placed against the face of the drum. As the sheet passes around the cylinder it comes into contact with the doctor blade, which ruffles the surface and puts the tiny folds and creases in the paper known as crêpe. Crêping gives the sheet the softness, bulk and pliability that characterise this type of tissue, and is another critical stage at which the product may be either made or marred.

After crêping the paper is finally ironed—like the Monday wash but, in this instance, between great calender rollers, which blunt the sharp edges of the crêpe and give the tissue extra softness. The sheet is then wound into large rolls known as "jumbo reels" ready for conversion into tissue products. The whole intricate process from head-box to



END PRODUCTS : High-grade tissue products made by the process described in the article.

jumbo reel is finished in much less time than its description takes to read—three to ten seconds, depending on the type of machine and the kind of tissue being made.

Before going any further the rolls are submitted to the scrutiny of quality-control technicians, who analyse samples for softness, bulk, colour, crêpe appearance, strength, weight, stretch and absorbency. Tissue that fails to pass those tests is sent back to the beginning to be pulped again. When the samples have been approved, the rolls are delivered to the conversion department, where they are slit, folded and cut by a variety of automatic machines into products such as face tissues, high-grade toilet tissues, and paper handkerchiefs. Those must all once more satisfy "quality control" before they are sent out to meet the ever-growing demands of the market.

FILMS and SERVICES

FOR THE COLOUR PHOTOGRAPHER

WHAT THE PHOTOGRAPHIC DEALER SHOULD KNOW ABOUT CURRENT FACILITIES

DURING the three years that have elapsed since the various systems of colour photography were described in these pages (*C. & D.*, June 26, 1954, pp. 679-86), there have been changes in the films and services available of which the chemist-dealer should be aware. The interest in colour photography displayed at the recent Photo Fair would seem to indicate that the demand for colour film this summer may exceed previous demands and a survey of the current market is therefore opportune.

New Films, New Services

The main changes have been in film speeds, in the emergence of new films and in the provision of new services such as colour printing and duplication. For years there has been among the general public a mild sense of dis-

appointment that colour films have come back as transparencies, and that prints, if they could be made, were very expensive. The Ilford and Kodak services, whereby prints at reasonable prices are made from transparencies, have eased that situation considerably. Another factor that can be expected to encourage the further use of colour film is the ability to obtain duplicates of 35-mm. colour transparencies. At first, the film which was exposed in the camera came back as a set of transparencies—one of each—and there was no service for providing duplicates. Only one member of a group of people, therefore, could retain a result in which perhaps several had an interest. Further this "one-off" limitation irked the keen worker who likes to make enlargements of his favourite shots. His alterna-

tives were to work in black-and-white only, or to duplicate his efforts in monochrome and colour, involving the transport of two cameras and expenditure on two types of sensitive material. He can now shoot on 35-mm. colour film and have black-and-white negatives made from the colour transparencies. Others, who like to do their own processing, are also catered for. There are chemical kits issued for the processing of certain reversal films and for the negative-positive systems. For the latter, papers and chemicals for home production of colour prints are available. Another facility enjoyed by the user of negative-positive colour systems is the ability to make monochrome prints in the ordinary way from his colour negatives without interfering with their suitability for colour printing.



FROM AN ENLARGEMENT BY THE AGFA NEGATIVE/POSITIVE SYSTEM. Courtesy of Agfa, Ltd.



S.S. QUEEN ELIZABETH AT SOUTHAMPTON. TAKEN ON FERRANIACOLOR BY R. M. FANSTONE, A.R.P.S.
Courtesy of Neville Brown & Co., Ltd.

Types of Material

Colour films fall into two main groups, each of which is subdivided. There are the negative-positive and reversal types. The former is developed to a negative, which is reversed in brightnesses and has colour values complementary to the end result. From the negative a print can be made in colour on suitable paper, or on an ordinary monochrome paper in the usual way. The other type is processed to a coloured positive transparency ready for viewing or projection.

Both types are catered for in material suitable for exposure by daylight or by artificial (photoflood) light. More recently a third type has made its appearance—Ilford Colour-F, balanced for exposure by ordinary flash-bulbs. No doubt other makers will follow suit. Not all imported colour films are available in this country in the artificial-light type. English films usually carry the designations "D" and "A" (daylight and artificial light respectively). German manufacturers use "T" (*Tageslicht*) and "K" (*Kunstlicht*) respectively. "Artificial light" refers to the photoflood type of electric lamp. Sources of light of other colour temperatures require the use of filters specified by the respective manufacturers. Except with Ilford Colour-F, blue-lacquered flash bulbs should be used with daylight-type stock, yellow-coated bulbs with films balanced for photoflood light.

Yet another subdivision applies to reversal-type films. Some, for example, must be returned to the manufacturer or his official agent for processing, because the colour couplers have to be introduced during development, and most precise control is necessary. In others the couplers are present in the emulsion layers, so that user-processing is possible. Ferranicolor is an example, and kits of prepared chemicals for that process are available.

Filters

Generally speaking, filters are contraindicated except when a film is exposed under lighting of a colour "temperature" differing from that for which the film was intended. The outstanding exception is the so-called "haze filter" which absorbs the ultra-violet light responsible for the bluish cast in colour photographs of landscapes, seascapes and snow scenes. The factor seldom exceeds $\times 1.5$, and many such filters demand no increase in exposure. Conversion filters must be selected with care, and the manufacturers' recommendations followed, if accurate results are required. Filters intended for one make of film do not necessarily exert the desired effect on another, though the results may be acceptable. A comprehensive tabulation of colour-correction filters is set out in the *British Journal Almanac*.

In the following survey of the current market only those materials likely to be handled by the chemist-dealer are included, since cut film and materials intended for the professional user (e.g. Ektachrome) are in the main distributed by specialist outlets.

ADOX COLOUR NEGATIVE FILM

K.B.—CNT, 35-mm. 20-exposure cassette ..	15s	2d.
R.—CNT, roll film (120 only) ..	12s	8d.

(processing extra)

Until arrangements have been made for processing in this country, films are returned to the importers for transit to the makers.

Recommended meter settings : ASA, 20; BS, 24°; Weston, 16; DIN, 15/10.

Luminos Ltd., 45 Belsize Lane, Hampstead, London, N.W.3

AGFACOLOR

Agfacolor Reversal : Types T and K

35-mm., 36-exposure cassette	£1 12s. 4d.
20-exposure cassette	£1 3s. 8d.
12-exposure cassette for Karat ..			17s. 6d.



FROM A TRANSPARENCY MADE ON GEVACOLOR REVERSAL ROLL FILM. Courtesy of Gevaert, Ltd.

Roll films, B2/8 (120) and PB20 (620) £1 0s. 1d.
A8 (127) 18s. 8d.

Cine film :

Double-eight 25-ft. spool (50-ft. 8-mm.) £1 9s. 0d.
Movex cassette (single-eight) ... £1 1s. 6d.
16-mm., 50-ft. spool ... £2 3s. 5d.
100-ft. spool ... £3 15s. 5d.
Siemens cassette ... £2 3s. 5d.

(including processing)

The customer returns the film to Agfa, Ltd., in addressed bag supplied.

Recommended meter settings : ASA, 24; BS, 25°; Weston, 16; DIN, 15/10.

AGFACOLOR NEGATIVE : Types T and K
35-mm., 20-exposure cassette 15s. 2d.; developing, 7s. 0d.

12-exposure for Karat 11s. 0d.; developing, 6s. 0d.

Roll film, A8 (127) 12s. 7d.; developing, 6s. 0d.
B2/8 (120) and PB20 (620) 12s. 8d.; developing, 6s. 0d.

Recommended meter settings: ASA, 12; BS, 22°; Weston, 8; DIN, 12/10 (but note: limited supplies of type CN17 are arriving. That is a universal film for daylight and

Prints by Agfacolor

Number per order	Contact		Enlargements							
	127 and 16 on 120	2½ in. sq. 2½ x 3½ in	2 x 3 in. from 35-mm.	3 x 3 in. from 2½ in.	3½ x 4½ in.	4 x 5¾ in.	5 x 7 in.	7 x 9½ in.	9½ x 11½ in.	11½ x 15½ in.
1 or 2	2s. 6d.	3s. 0d.	4s. 0d.	4s. 0d.	5s. 6d.	8s. 6d.	12s. 6d.	23s. 6d.	38s. 6d.	64s. 6d.
3 to 9	2s. 2d.	2s. 7d.	3s. 5d.	3s. 5d.	4s. 8d.	7s. 3d.	10s. 7d.	20s. 0d.	32s. 9d.	54s. 10d.
10 to 50	1s. 11d.	2s. 3d.	3s. 0d.	3s. 0d.	4s. 2d.	6s. 4d.	9s. 4d.	17s. 7d.	28s. 10d.	48s. 4d.
50 or more	1s. 8d.	2s. 0d.	2s. 8d.	2s. 8d.	3s. 8d.	5s. 8d.	8s. 4d.	15s. 8d.	25s. 8d.	43s. 0d.



FROM AN ILFORD COLOUR TRANSPARENCY. Courtesy of Ilford, Ltd.

artificial light with a speed equivalent to ASA, 32; BS, 26°; Weston, 24; DIN, 17/10).

Film developing and print orders placed with retailer.
Authorised processing laboratories: Fencolor, Jones & Bailey, Tempo, Turners, Millcolor, Lyall Smith.

DUFAYCOLOR

The one surviving additive process on the British market. Compensating filters for daylight and other illuminants supplied for each batch.

35-mm., 20-exposure cassette .. 12s. 0d.; refill, 9s. 0d.
Roll film, 20 and Y20 (620) .. 8s. 7d.

Recommended meter settings: ASA, 8; BS, 20°; Weston, 6; DIN, 10/10.

Processing, all sizes, 5s. by Dufay or Preston.

User processing comparatively simple by formulae supplied with film.

FERRANIACOLOR

Reversal film. Daylight-type only available in roll-film. Daylight and tungsten types in 35 mm.

35-mm., 20-exposure cassette .. 16s. 0d.; refill, 12s. 6d.
Roll film, 120 and 620 .. 12s. 10d.
127 .. 12s. 6d.
Processing extra

Recommended meter settings: ASA, 12; BS, 22°; Weston, 10; DIN, 13/10 (daylight type).

User-processing (using chemical kits prepared by Johnsons of Hendon, Ltd., and distributed jointly by them and Neville Brown & Co., Ltd.).

The following laboratories undertake processing: Fencolor, Lewiscolour, Stewarts, Swain, Wrenhurst.

Retail prices of processing, 7s. 6d. all sizes.

Importer and distributor: Neville Brown & Co., Ltd.

GEVACOLOR

N5-Negative; daylight-type only

35-mm., 20-exposure cassette 15s. 2d.; processing, 7s. 0d.

Roll film, 127 .. 12s. 7d.; processing, 6s. 0d.
120 and 620 .. 12s. 8d.; processing, 6s. 0d.

Recommended meter settings: ASA, 25; BS, 25°; Weston, 24; DIN, 16/10.

Prints:

Contact, 2 $\frac{1}{4}$ " x 2 $\frac{1}{4}$ " and 2 $\frac{1}{2}$ " x 3 $\frac{1}{2}$ " .. 3s. 0d.
Enlargements, 2 $\frac{7}{8}$ " x 4", 4s. 6d.; 4 $\frac{1}{8}$ " x 4 $\frac{1}{8}$ ", 8s. 6d.; 4 $\frac{1}{8}$ " x 5 $\frac{1}{8}$ ", 8s. 6d.; 5 $\frac{1}{8}$ " x 7 $\frac{1}{8}$ ", 12s. 6d.; 7 $\frac{1}{8}$ " x 9 $\frac{1}{2}$ ", 23s. 6d.

Processing by Gaycolor, Hamilton Tait (negatives and prints).

R5-Reversal; daylight-type only

35-mm., 20-exposure cassette 23s. 6d.
Roll film, 127 18s. 8d.

120 and 620 20s. 1d.

inclusive of processing

Recommended meter settings: ASA, 25; BS, 25°; Weston, 24; DIN, 16/10.

Customer sends film for processing to Gevaert, Ltd.

Distributors: Gevaert, Ltd., Great West Road, Brentford, Middlesex (new address).

ILFORD COLOUR

Reversal: Types A, D and F (clear flash bulbs)

Cassette, 20-exposure, 35-mm. only

21s. 6d., inclusive of processing

Recommended meter settings:

Type D: ASA, 10; BS, 21°; Weston, 10; DIN, 12/10.

Type A: ASA, 16; BS, 23°; Weston, 12; DIN, 14/10.
Customer returns film to Ilford, Ltd., in addressed bag supplied.

Prints—from any good card-mounted or single unmounted positive transparencies on 35-mm. perforated film.

Size: 3 $\frac{1}{8}$ " x 5 $\frac{1}{2}$ in. on white plastic base (minimum order four from one or more transparencies) .. 2s. 6d. each

New large size: 5 $\frac{1}{2}$ " x 8 in. in slip-in card mount with strut .. 7s. 6d. each (no minimum order specified)

Duplicate colour transparency, from any type of trans-



TAKEN ON KODACHROME FILM. Courtesy of Kodak, Ltd.

parency on 35-mm. film in sizes up to 24 x 36-mm., same size, from same original:

1 to 5	4s. 0d. each
6 to 24	3s. 0d. "
25 to 99	2s. 0d. "
100 or more	1s. 0d. "

Black-and-white negative, 2s. 6d. (No minimum specified; originals to be card- or unmounted.)

Orders for prints, duplicates and negatives received by retailer and forwarded to Ilford, Ltd., Rosedale Road, Richmond, Surrey.

KODACHROME

Reversal: Types A and D

Cassettes, 35-mm., 20-exposure	25s. 2d.
36-exposure	37s. 8d.
Roll film, 828	13s. 4d.
Cine film, 100 ft. 16-mm. spool	78s. 10d.
50 ft. 16-mm. spool	45s. 7d.
50 ft. 16-mm. magazine	56s. 9d.
25 ft. double-8 spool	29s. 0d.
25 ft. double-8 magazine	36s. 7d.

Inclusive of processing.

Customer forwards exposed film to Harrow in addressed package supplied.

Recommended meter settings:

Type D : ASA, 10; BS, 21°; Weston, 10; DIN, 12/10.
Type A : ASA, 16; BS, 23°; Weston, 16; DIN, 14/10.

Prints :

3½ x 5 in. from 24 x 36-mm. or 28 x 40 mm. colour transparencies, 3s. 6d. each (minimum order, four)

5 x 7 in. from whole of negative, 12s. 6d. each.

Duplicate transparencies (originals to be submitted in card mounts or between glass):

1 to 3 ordered at one time	3s. 0d. each
4 to 49	2s. 6d. "
50 to 99	2s. 0d. "
100 or more	1s. 6d. "

Monochrome negatives

Supplied in strips of not less than 10 negatives 24 x 36 mm. (28 x 40-mm. negatives reduced to 24 x 36-mm.) Made from mounted transparencies, 1s. 0d. per negative, minimum ten.

Orders for prints, duplicates and negative strips via retailer.

PAKOLOR

Universal negative-type for daylight and artificial light 35-mm., 20-exposure length 12s. 9d.

Roll film, 120	12s. 9d.
120-half length	9s. 2d.

Recommended meter settings : ASA, 32; BS, 26°; Weston, 24; DIN, 16/10.

Processing by user, Photo Chemical Co. or Fencolor.

Processing kits for developing and printing with safelight, filters, paper and chemicals £3 0s. 2d.

Paper and chemicals available in a variety of sizes.

Photo Chemical Co., Ltd., Church Road, Epsom, Surrey. (Pakolor products are no longer distributed by Associated British-Pathe.)

PATHESCOPE

P.C.F. 9.5-mm. reversal cine film, daylight type.

Available in Pathescope H charger only 19s. 9d.

Recommended meter settings : ASA, 12; BS, 22°; Weston, 10; DIN, 13/10.

User forwards exposed film to Pathescope, Ltd., North Circular Road, Cricklewood, London, N.W.2.



FROM AN ENLARGEMENT OF A PAKOLOR NEGATIVE ON PAKOLOR PAPER
Courtesy of Pakolor, Ltd.

RAYCOLOR

Reversal film ; types D and A
35-mm., 20-exposure cassette 15s. 6d.
20-exposure refill 11s. 9d.
Roll films, 120 and 620 12s. 4d.
processing 6s. 6d. both sizes
Processing by Raycolor, Weybourne Road, Farnham,
Surrey, or by user. Chemical kit issued by makers at
11s. 0d.
Recommended meter settings : ASA, 20; BS, 24; Weston,
16; DIN, 15/10.

PROCESSING LABORATORIES

Agfa, Ltd., Deer Park Road, Wimbledon Factory Estate,
Morden Road, London, S.W.19.
Dufay (Birmingham), Ltd., 308 Summer Road, Birmingham, 19.
Fencolor, Ltd., 11a Newmarket Road, Cambridge.
Gaycolor, Ltd., 27 Great West Road, Brentford, Middlesex.
Haagman Colour Laboratories, 18 Doughty Street, London,
W.C.1.
Jones & Bailey, Ltd., 4 Mount Mills, London, E.C.1 (new
address).
Lewiscolour Photo-Lab., 11 West Central Street, London,
W.C.1.
Millicolor, Ltd., 48 John Street, Brighton, 1.

I.C.I. COLOUR

For some years it has been an open secret that Imperial Chemical Industries, Ltd., have been working on a photographic colour process. Sheet film, balanced to tungsten light, is now being offered to commercial photographers, and a number of processing laboratories have been appointed. The material is of the three-layer type, with an integral silver mask. No details have so far been released to the Press, and the company appear reluctant to make an early statement. It is unlikely that material for amateur use will be available for some time.

Preston Photographic, Ltd., 48 Church Road, St. Annes-on-Sea, Lancs.
Lyall G. Smith, 8 Terenure Road East, Rathcar, Eire.
Stewart's Colour Service, 15 Clarence Road, Gosport,
Hants.
E. E. Swain, Ltd., 58 Westgate, Hunstanton, Norfolk.
Hamilton Tait, Ltd., 2 Millar Crescent, Edinburgh, 10.
Tempo Laboratories, 80 St. John's Road, Tunbridge Wells,
Kent.
Turners (Colorfoto), Ltd., 7 Pink Lane, Newcastle-on-Tyne, 1.
Wrenhurst, Ltd., 14 Blandfield Road, London, S.W.2.



BRISTOL'S PARK STREET, with the tower of the University at the top. At its left is the Art Gallery and Museum. Clifton lies ahead.



DRUG MANUFACTURE AT BRISTOL: Making and filling galenicals in the recently completed factory of Ferris & Co., Ltd. (see pp. 709-11). The building replaces works destroyed by enemy action in 1940.

Bristol

HOME OF THE MERCHANT VENTURERS
MODERN ATLANTIC SEAPORT
TOBACCO CAPITAL
SPRING-BOARD OF TITANIC AIRCRAFT

QUEEN CITY OF THE WEST

GLAMOUR in plenty attaches to the City and County of Bristol. Few indeed of those who come to it in September for the ninety-fourth meeting of the British Pharmaceutical Conference will arrive without some colourful mental picture of the town. But more than likely it will be a picture lacking in definition.

For Bristol is a rich and complex entity, difficult to reduce to a simple sharp image. Some may see it as the port of embarkation of the Merchant Venturers. A few may be set pondering on the Slave Trade—in which Bristolians were both among the earliest to engage and quite the first to abandon. Westcountrymen may come speculating on the accident of geography that made the city a regional capital without ever making it a county town. Cross-channel visitors may come half expecting a city of hotels: prototypes of the Hotel Bristol that is to be found in so many unlikely places abroad. Or they may hope to satisfy their curiosity as to how *un Bristol* came to mean, in parts of France, a picture postcard. The seafaring may take ship with Cabot, the air-minded rise on mental wings in a Britannia.

For Bristol is at one and the same time seaport and market place, mediæval stronghold and modern industrial centre. It has traded for centuries to the ends of the earth, yet lived in comparative isolation at home. Its history resembles in some ways the history of London, yet the two cities have little in common. London, the magnet, has drawn men to her from all the corners of the compass. Bristol, left alone, has had to rely on her own lusty independence.

Bath, twelve miles away and with only a fifth the population, was a Roman city before Bristol was born, a hub of eighteenth century society when Bristol was self-contained and, as it were, unsociable. Bristol's origin was as a "bridge-place" (Brycgstow in the Anglo-Saxon Chronicle) across the river Avon. Above it and below, to cross the river was, in former days, none too easy. In places were precipitous gorges that still exist, in others marshy banks that have since been drained. From the Gloucestershire side where Bristol stands, a tongue of rock, 50 ft. or so above sea level, points southward into the river towards Somerset, skirted on the west by the tributary Froom (now partly underground). Upon that isthmus, guarded between Norman and Crom-

wellian times by a Castle, grew up the mediæval walled city (that pestle-shaped part of modern Bristol in which lie Corn, Wine, Small, Broad, High and Castle Streets and Tower Lane).

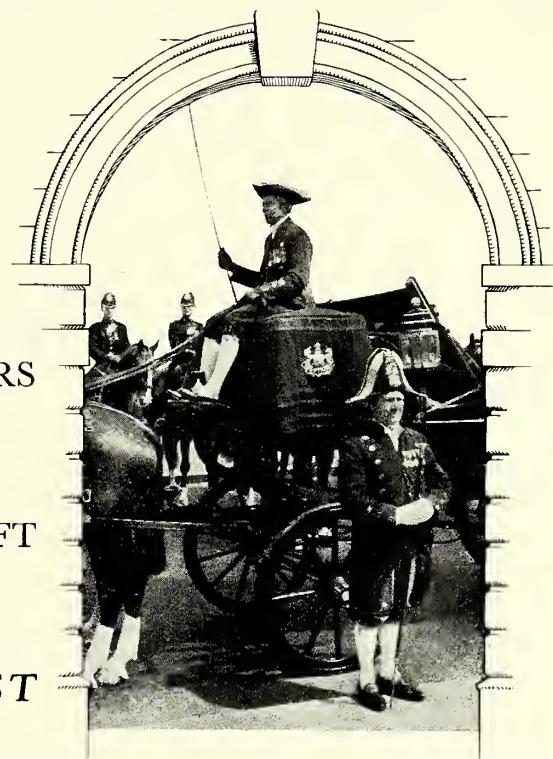
But if Bristol's existence as a township is explained by the dry and firm foothold which that tongue of land provided for travellers crossing the river, quite other reasons governed her rise and continuance as a seaport. As a port she has two histories, dominated each by quite separate geographical factors. Down to the eighteenth century Bristol shared with other Severn ports the ability to take ocean-going ships. Indeed she was less well placed than some, because the level of her river could vary up to 37 ft. between high and low tides, while a bend in the river's course to the sea made navigation virtually impossible for ships much above 300 ft. long. What ensured her prosperity in those times was her location as a clearing-house for products of the Midlands and West (South Wales ports had then no hinterland of industry); and as a place of interchange between sea-going and river-going vessels.

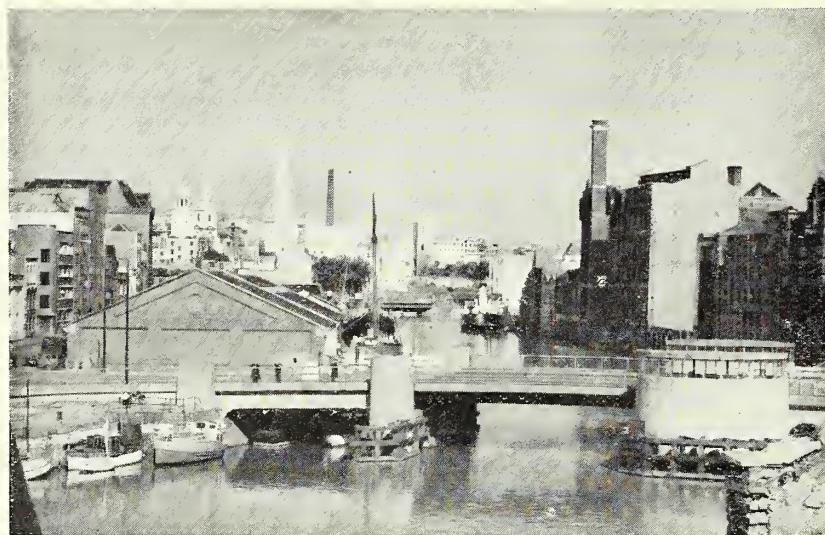
To modern freighters of 10,000 tons or more, which could never negotiate that bend, Bristol has been able to offer, at its port extension Avonmouth, a direct deep-water passage down the Severn estuary and Bristol Channel to the Atlantic.

Historical Milestones

In the twelfth and thirteenth centuries Bristol's story was mainly one of the setting-up of houses for the religious orders: the Benedictines, Augustinians, Dominicans, Franciscans and Carmelites. Parts of the cathedral church of St. Augustine, on College Green, date from those times, though its nave is Victorian. The church of St. Mary Redcliffe, described as "undoubtedly the finest non-episcopal church in the Kingdom" was built mainly between 1320 and 1380.

Under Edward III the city became a great centre for the wool trade, handling fleeces from Somerset, the Cotswolds, the Gloucestershire lowlands and the Wye valley. During the same reign (in 1373) the town was made a county ("the City and County of Bristol") for its contribution to the French wars. In the next century Bristol merchants became





DOCKS AND SPIRES: The Church and Commerce have been intertwining threads in the pattern of the City's history. NATURE AND ART: Trees and the river (right) against a setting of the Hotwells spa and Brunel's Clifton Bridge.

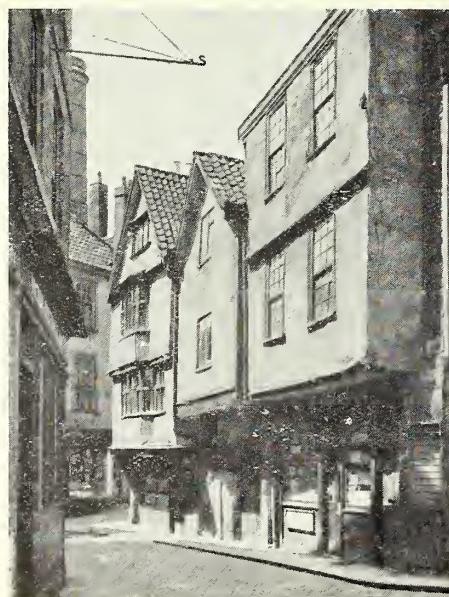
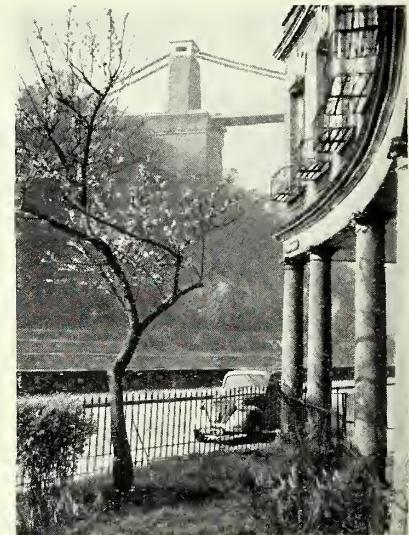
wealthy ship owners and merchant princes, reaching out ever further into uncharted seas until those Venetian settlers in the city, John Cabot and his son Sebastian, set out in 1497 in quest of a North-west Passage and found instead America—twelve months, as Bristolians proudly claim, before Columbus.

Pepys described the city as "in every respect another London." In his day or a little later, Bristol's most honoured citizen and benefactor, Edward Colston, was founding almshouses and schools, embellishing churches, and Bristol, despite threats from Royal monopolies in London, was establishing soap and tobacco industries that have persisted. More than half the city's ships in 1670 were carrying tobacco.

Between 1700 and 1750 an outburst of building activity transformed the city from a mediaeval to a modern town, and added the districts of Hotwells, whose spring water was bottled and sold in London and other centres of population; and Clifton, "doing for Bristol," as one writer puts it, "what Hampstead did for London." Some of the University Halls of Residence are in Clifton: For example Clifton Hill House, built between 1746 and 1750 for Paul Fisher, a wealthy Bristol merchant, to the designs of Isaac Ware. Even

those who are not staying in Clifton will for certain be visiting Brunel's masterpiece the Clifton Suspension Bridge—which, alas, he never saw, for in arrested development it remained untouched for close on twenty years for lack of funds.

Conference visitors will, of course, be making first-hand acquaintance with some of the City's notable buildings: the Royal West of England Academy; the University tower and halls, the City Museum and Art Gallery, Colston Hall, the Council House and others, at which Conference sessions or events are being held. Many others are worth a visit. Dwellings at 11-12 Guinea Street housed patients of the General Hospital before the Hospital was built, and remain its property. In Dowry Square, off Hotwell Road, among houses built to provide lodgings for fashionable visitors to the Hot Well, was once the Dr. Beddoe's Pneumatic Institute at which Humphrey Davy lectured. In Broadmead is the first Methodist Chapel in the world. In College Green is the only church (St. Mark's) in Britain owned by a Mayor and Corporation. The Theatre Royal, in King Street, is the oldest playhouse in Britain still in use for its original purpose. The Hatchet Inn, Frogmore Street (not far from Col-



FORGOTTEN CENTURIES LIVE ON AT BRISTOL'S CENTRE: Left, late mediaeval houses at Queen Street, better known as Christmas steps. Centre: St. John's Church in the ancient city wall, its tower rising above the sole surviving gateway. Right, the sixteenth-century Hatchet Inn in Frogmore Street.

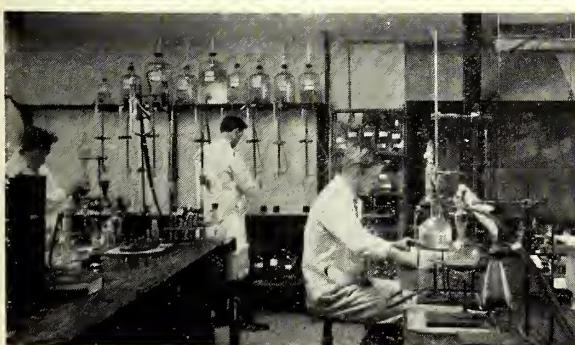
lege Green) has beautiful sixteenth-century carving. The Llandoger Trow, in King Street, dates from 1664. The last remaining gateway in the old city wall has a church tower above, its church, St. John's, within the width of the wall. A long catalogue could be made of such architectural treasures. But pharmacists sightseers may also be interested in buildings of pharmaceutical interest. A descriptive history of the pharmacy department of the Bristol Royal Infirmary has been published in these pages (*C. & D.*, Annual Special Issue 1956, and later issues).

There is little pharmaceutical manufacture in the city, though from Bristol emanate such famous old medicinal specialities as Schacht's Bisedia and Ferris's Nepenthe.

One of the Country's Oldest Drug Firms

Apart from branches of firms whose head offices are in other parts of the country, Bristol's only pharmaceutical wholesaler and manufacturer is Ferris & Co., Ltd., Portland Square.

Founded in the year 1770, the organisation is one of the oldest firms of druggists in the country. Its founder was a Mr. Tilladam, a member of the Society of Friends, who established the business in a then new street called Union Street, which ran from the marshes of Broadmead to the centre of the old town. Mr. Tilladam died in 1794 and his wife, who carried on the business, retired in the early part of the nineteenth century. The business was then conducted



BRISTOL WHOLESALING AND MANUFACTURING: Scenes at the works of Ferris & Co., Ltd. At left, from top: 1, Reception counter, at which many local chemists call for urgent requirements. 2, Warehouse from which "ethical" ordered by customers are put on to assembly trolleys. 3, Dangerous Drugs room; in the foreground Nepenthe is being labelled for stock. 4, Control laboratory. At right, from top: 1, Manufacturing dispensary, in which is carried-out small-scale preparation of medicaments mainly destined for retail pharmacies. 2, Bottle washing. 3, Ointment milling.



After loss of its premises by enemy action, and before the new building could be erected, much of the work of Ferris & Co., Ltd., had to be carried on under improvised conditions. Part of the yard as it was before the change.

by John Fry, another member of the Society of Friends and connected with the world-famous cocoa and chocolate manufacturers, J. S. Fry & Sons, Ltd. Fry took into partnership first Mr. Gibbs and later Mr. Richard Ferris, the firm then being known as Fry, Gibbs & Ferris. The three set up one of the earliest mineral-water plants, and also began to develop the wholesale side of the business. In 1825 Mr. Gibbs resigned. He had become interested in the manufacture of alkali and was also appointed one of the first directors representing Bristol when the Great Western Railway was formed. Gibbs became mayor of Bristol in 1842-43; he met an untimely death in a railway accident at Ealing in 1853. On Mr. Gibbs' resignation the partnership was joined by Mr. Brown, who was quickly followed by Mr. Capper. In 1833 Mr. Fry retired and the partnership became known as Ferris, Brown & Capper.

In 1834 disaster overtook the firm. A severe fire on a Saturday night was caused by the ignition of a bottle of ether, and the premises were destroyed. Undaunted, the partners obtained new premises on the opposite side of Union Street and reopened on the Monday. On that site the firm remained until 106 years later when, by enemy action, the premises were again destroyed by fire.

Round about 1845 the firm opened a branch in Clifton and another at Clevedon; both eventually closed down. The standing of the business was enhanced by its appointment as "Chemists to King William IV" and later, after the retirement of Mr. Capper (when the title of the partnership became Ferris, Brown & Score) as "Chemists to Queen Victoria."

When Mr. Richard Ferris retired in 1858 many changes

took place within the organisation. For a time Messrs. Coupland, Lamotte and J. H. Townsend were in partnership. Then Messrs. Boorne, Charles Townsend & Boucher.

The business grew in size, and in 1904 became a limited company under the title of Ferris & Co., Ltd. The board then consisted of Messrs. C. Townsend and John Boucher and their sons Messrs. H. H. Townsend, C. E. Boucher and J. M. Boucher. Under their management the business continued to expand. Mr. J. F. Boucher, the present managing director, joined the company in 1928. The company's affairs continued with no diminution in prosperity until, as mentioned earlier, the main factory was destroyed in November 1940. That was not the worst. A week later the company's other premises were also demolished by enemy action. Fresh warehouses had to be obtained at short notice and in different parts of the city, but the company continued to supply galenicals, surgical instruments, dressings, etc., to chemists, hospitals and doctors. For sixteen years the company worked under great difficulties, but new premises have been erected at 31 Portland Square and all activities are rapidly being centralised at that address. During the years those activities have widened from what are usually regarded as normal to a wholesale druggist. The company's medical speciality Nepenthe has a world renown, and there can hardly be a chemist in the country who does not sell Nigroids over his counter. Fewer, perhaps, will know that Messrs. Ferris are actual manufacturers of hospital ward trolleys, ward screens and similar metal furniture and suppliers of first-aid cases for industry. The company's managing director (Mr. J. F. Boucher) is a member of the local Finance Committee for the Bristol meeting of the Conference.

FIFTY YEARS AGO

CONFERENCE PREPARATIONS

From the C. & D., June 29, 1907

FOR the meeting of the British Pharmaceutical Conference, to be held at Manchester on July 22 to 26, under the presidency of Mr. Thomas Tyre, F.I.C., the preparations are well forward both as regards the programme of papers and the local arrangements. As to the former we understand that the communications promised are quite up to the average in number and importance. Mr. Tyre is the first President of the Conference whose initial training as a chemist was received outside pharmacy, and although the greater part of his life has been devoted to the pharmaceutical part of industrial chemistry, we may expect that his presidential address will deal with some of the larger questions of our craft. The local arrangements are in the hands of a general committee consisting of 150 members, and of these some forty form the Local Executive Committee, which, again, is divided into smaller sections, each being entrusted with the details of a certain part of the programme. Many of the members are realising for the first time what an immense amount of detail requires to be gone into when the Conference visits a town; but this only serves to make the committee resolve that the Manchester meeting shall touch the high-water mark. The last visit of the Conference to Cottonopolis was in 1887, when Mr. S. R. Atkins was President, and there is reason to believe that he will be able to be present in Manchester this year. The Jubilee Exhibition, which was held in the city in 1887, made the work of the Entertainments Committee lighter than it is this year. It may be remembered that the B.P.C. "Unofficial Formulary" saw the light at Manchester in 1887. Last time the Conference met in Owens College, but this year the sittings will be held in the Midland Hall, part of the Midland Hotel, which has been selected as the headquarters for the week. An innovation is being made in the time the sessions last. Instead of a morning and an afternoon sitting the meeting will be continuous from 9.30 a.m. till 2 p.m., when luncheon and social functions will occupy the rest of the day. There is no lack of entertainment for visitors. The programme has already been given in THE CHEMIST AND DRUGGIST, and includes several novelties. The chief of these is the round of technical visits on Tuesday afternoon and the Hippodrome visit on Wednesday night. Some 300 seats have been engaged at the Manchester Hippodrome for visitors to the Conference. At Newcastle some years ago the ladies were

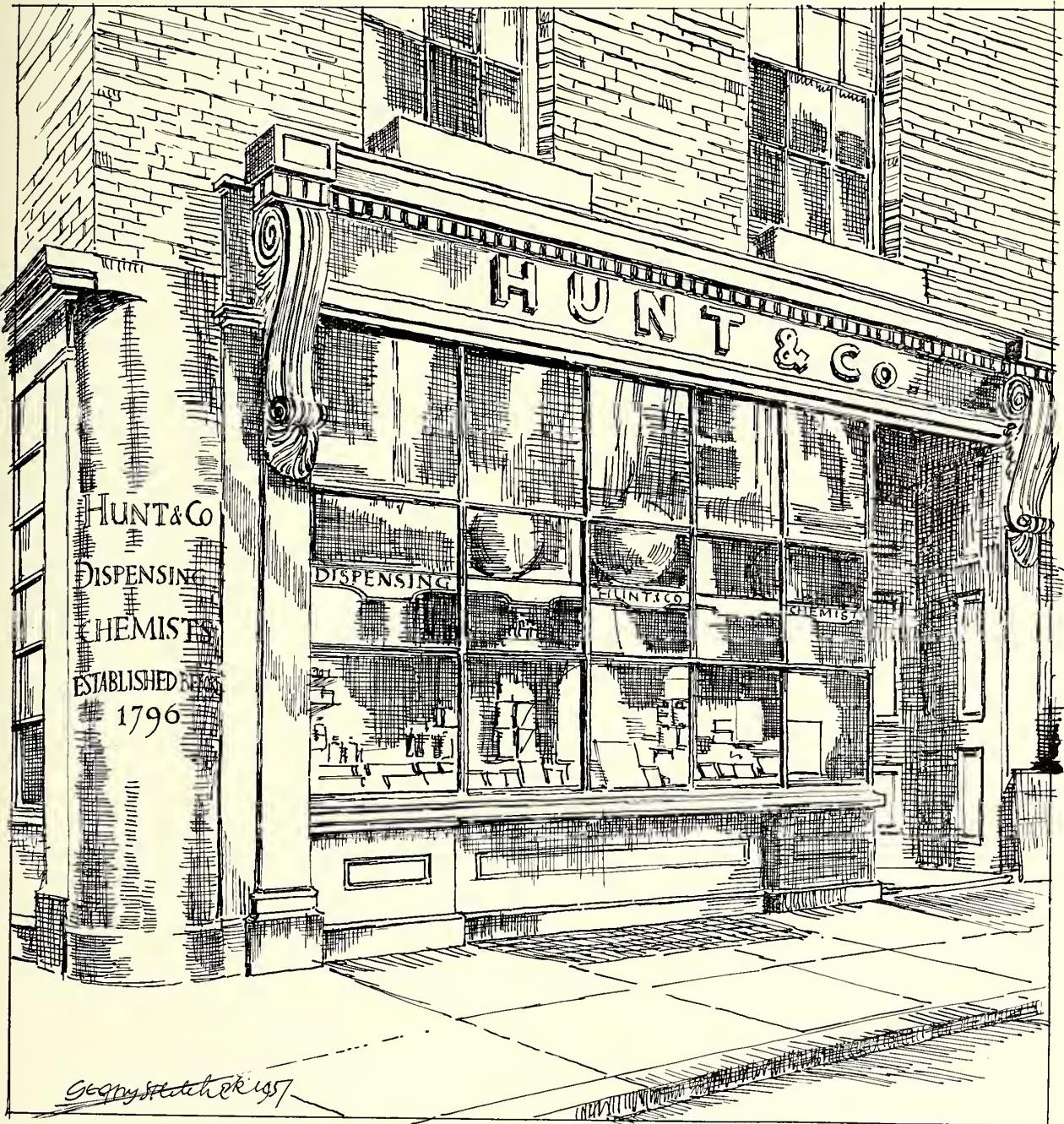


The company's managing director (Mr. J. F. Boucher) is a pharmacist and has played an important part in organising the finances of the Conference Local Committee.

taken to the theatre, and at the London meeting private theatre-parties were organised, but we believe this is the first time that the Conference members as a whole are invited to a place of amusement. The Thursday excursion is on a scale seldom attempted, although we have in mind the delightful outings which are always the feature of this day. The Manchester Committee is taking the visitors by train to Windermere, then in a steam-yacht the whole length of the lake to Ambleside, where luncheon will be served. Luncheon over, there will be a coach-drive to Grasmere, after which the return journey will be made to Manchester. The day's excurs-

sion will include some of the finest scenery in the British Islands, and, given fair weather, it should be most enjoyable. If it is wet (a possibility which is not overlooked) alternative entertainments will be arranged in place of the coach-drive. Special trains and yacht have been arranged, and we are assured that the time-table will be adhered to, notwithstanding the magnitude of the excursion. They are used to doing things on a large scale in Lancashire. Another all-day excursion is arranged for Friday to Messrs. Crosfield & Son's works at Warrington, where welfare-work is well carried out in rather discouraging surroundings.

PHARMACIES OF BRITAIN—59



THE PHARMACY OF HUNT & CO., WINCHESTER

Winchester is generally believed to be the Barchester of Anthony Trollope's novels. If so, his characters would most certainly have purchased their family remedies from this fine pharmacy, an example of the simple, dignified Classical style in vogue at the turn of the eighteenth and nineteenth centuries. It has the characteristic facia lettering of the early nineteenth century.

Old English Patent Medicines in America

IN 1824 there issued from the press in Philadelphia a twelve-page pamphlet entitled *Formulae for the Preparation of Eight Patent Medicines, Adopted by the Philadelphia College of Pharmacy*. The College, dating from 1821, was the first professional pharmaceutical organisation in America, and the pamphlet was its first major venture. Today it may seem strange, if not shocking, that the maiden effort of such a college should be publicising formulas for nostrums. To add to the novelty all eight of those patent medicines, about half a century after American independence, were of British origin.

Eight Ancient Proprietaries

When the Philadelphia pharmacists began their study, the eight English proprietaries were from half a century to two centuries old. The most ancient was Anderson's Scots pills, a product of the 1630's, prepared from a formula learned in Venice, by a Scot who claimed to be a physician to Charles I. Godfrey's cordial may also have had a seventeenth-century origin; the record reveals conflict over its paternity. In 1726 George I granted a patent for the making of Dr. Bateman's pectoral drops. Not a physician named Bateman, but a business man named Benjamin Okell was the patentee, in league with a group of venturesome promoters with a warehouse and printshop in Bow Churchyard. Two decades later, Michael and Thomas Betton received a patent for British oil: "An Oyl extracted from a Flinty Rock for the Cure of Rheumatick and Scorbutick and other Cases." The next year a Reading apothecary, John Hooper, was granted a patent for the manufacture of "female pills" bearing his name. He was soon followed to the patent office by Robert Turlington, who received protection for "A specifick balsam, called the balsam of life." A quarter of a century later, in the 1780's, the last two of the Philadelphia eight appeared upon the British market, neither remedy being patented. A Dr. Steer appropriated a soap liniment formula from the *Pharmacopœia Edinburgensis*, added ammonia, and called it his "celebrated opiodeloc." And a London apothecary named Dalby began advertising a carminative designed to cure "disorders of the bowels" (1-4).

The eighteenth was a Cinderella century, at once an age of enlightenment and a time of superstition. Of what actually caused diseases man knew little more than the ancient Greeks. Among the learned there were many theories and much disputation. The aristocratic practitioners, the London College of Physicians, refused to expand their ranks



JAMES HARVEY
YOUNG
*Associate professor,
Department of History,
Emory University,
Georgia, U.S.A.*

GEORGE B.
GRIFFENHAGEN
*Curator,
Division of Medicine
and Public Health,
Smithsonian Institution,
Washington, 25,
D.C., U.S.A.*

FORMULA

FOR THE

PREPARATION OF EIGHT

PATENT MEDICINES,

ADOPTED BY THE

PHILADELPHIA COLLEGE

OF

PHARMACY.

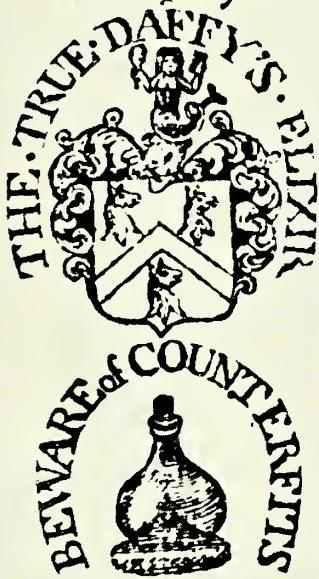
MAY 4th, 1824.

SOLOMON W. CONRAD, PRINTER,

No. 32, Church Alley.

Title-page of twelve-page pamphlet published by the Philadelphia College of Pharmacy in 1824 in which are set forth formulas for eight old English patent medicines. Courtesy, Philadelphia College of Pharmacy and Science, Philadelphia, Pa., U.S.A.

Dr. DAFFY's ELIXIR SALUTIS,
*Truly pr par'd by RICHARD ROCK, in King's Arms Court,
 over-against the London Punch-House, Ludgate-Hill,*

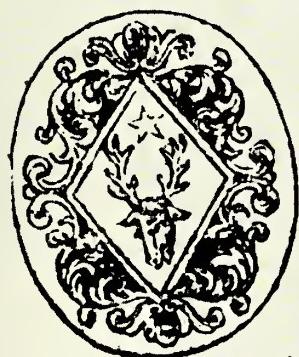


N. B. To prevent being improv'd on by Counterfeits, sold at Numbers of Shops in this Town, and Country, be careful to observe that each Bottle is seal'd with the above Impression.

Such Persons as mistrust the Goodness of th's Elixir, may have a Bottle open'd to taste it.

Two advertisements for Daffy's Elixir from the very same column of the same issue of the October 29, 1743, issue of the London "Daily Advertiser," each claiming to be the only true Daffy's Elixir. The top advertisement pictures a bottle apparently used to hold Daffy's Elixir.

DAFFY's Original and Famous ELIXIR SALUTIS,



Coat of Arms) as in the Margin, and printed Directions with each given,
 by me

TRULY prepar'd by me
 SESA NNAH Daffy, who for many
 Years prepar'd the same for my late Mother,
 Elizabeth Daffy, of Salisbury-Court, Fleet-
 Street, deceas'd, Widow of the late Dr. Elias
 Daffy, who was Son of Anthony Daffy, (the
 first Inventor) by Eleanor Daffy his Wife, both
 deceas'd.

To be had at the second House on the right
 Hand in Bell-Savage-Yard, Ludgate-Hill, each
 Bottle seal'd with my Seal, (being the Daffy's

Sesannah Daffy.

Note, Numbers of Advertisements have been heretofore, and are still
 printed in the Daily and other Papers, of Daffy's Elixir, truly prepar'd;
 but all Persons may be assur'd, that the true original Daffy's Elixir is
 prepar'd by me, and no one else; (except by my Brother, Anthony Daffy)
 and is to be had as above.

even though there were over 1,300 serious cases of illness a day to every member of the College. The masses had to look elsewhere⁽⁵⁻⁶⁾. Orthodox medicine, knowing little about the precise action of drugs in relation to given ailments, tended to mix numerous ingredients in the same "blunderbuss" formula. A number of botanical drugs so employed dated back to the dawn age of medicine; others were products of the recent era of world-wide discovery, and some were metallic ingredients introduced by the sixteenth-century Paracelsus⁽⁷⁻⁸⁾. Patent medicines were compounded in the same traditions. In their complexity, in the nature of their potency, they were blood brothers of preparations in various pharmacopœias and formularies. Indeed, there was much borrowing in both directions.

It would be hard to find a time and place in which nostrum promotion was more brazen than in eighteenth-century England. Therapeutic claims achieved the very perfection of extravagance. Castigation of rivals reached the summit of acrimony. Name-stealing and patent-jumping were the lot of every successful proprietor. From Anderson's to Dalby's, all eight of the patent medicines which the Philadelphians were later to consider became the subject of intense rivalry. One enterprising woman, for example, marketed Scots pills in boxes sealed with black wax bearing a lion rampant, three mallets argent, and the bust of Dr. Anderson. A male competitor sealed his boxes in red wax with his coat of arms and a motto—strangely chosen for a medicine: "Remember you must die."

Another nostrum destined for a great vogue in America, Stoughton's elixir, became, upon the death of the inventor, the subject of a family feud. A son of Stoughton and the widow of another son argued in print in most vituperative fashion. Each claimed sole possession of the formula, and each termed the other a scoundrel. The daughter-in-law accused the son of financial chicanery; the son condemned the daughter-in-law for having run through two husbands and for desperately wanting a third. In the midst of the battle a third party entered the lists. She was no Stoughton—though a widow—and her quaint claim for the public's consideration lay in this: that her late husband had infringed Stoughton's patent until restrained by the Lord Chancellor.

First Printed Reference?

In the *Boston News-Letter* for October 4, 1708, Nicholas Boone, at the Sign of the Bible near the corner of School-House-Lane, advertised for sale: "DAFFY'S Elixir Salutis, very good, at four shillings and sixpence per half pint Bottle." This may well be the first printed reference in America to an English patent medicine, and it certainly is the first newspaper advertisement for a nostrum. There had been only one gazette preceding the *News-Letter* in colonial America, and it had lasted but a single issue. Then its printer had returned to England to assume the rôle of nostrum promoter, vending "the only Angelical Pills." Daffy's elixir had been invented by an English clergyman soon after 1650. It seems a likely assumption that some seventeenth-century would-be colonist, setting forth to face the hazards of life in Jamestown or Philadelphia or Boston, had packed a bottle of the elixir or a box of Anderson's pills to bring along. Still, no record to support such an incident has been found. And the *News-Letter* was four years old before Boone announced his supply of Daffy's remedy.

Advertisements in colonial newspapers for the old English patent medicines were infrequent for the next half-century. Then in the 1750's the pace quickened, accelerating even

more in the following decade. By 1770 those six of the eight Philadelphia pamphlet medicines which as yet were invented were well known throughout the colonies. All had been listed over and over again in the advertising columns of papers published in Boston and New York, in Baltimore and Charleston. Nor were supplies confined to apothecaries who vended at the Sign of the Bible or the Sign of the Unicorn and Mortar. The imported English remedies were sold by postmasters, goldsmiths, grocers, hair-dressers, tailors, printers, booksellers, cork cutters, the post-rider between Philadelphia and Williamsburg, and by many colonial American physicians.

It is a matter for comment that American newspaper advertising of the English packaged remedies was singularly drab. The apothecary or merchant had no proprietary interest in any of the imported brands. There was probably not so great a surplus of supply over demand in America as in Britain. And advertising space in the few American weeklies was more at a premium than in the more frequent and numerous English journals. Thus, while in England the proprietor sharpened up his adjectives and reached for his vitriol, in America, with rare exceptions, advertisers were content merely to list their



Portrait of Patrick Anderson, M.D., from a box of Anderson's Scots Pills. From Wootton's *Chronicles of Pharmacy*, London, 1910.

adjectives and reached for his vitriol, in America, with rare exceptions, advertisers were content merely to list their

A
Short TREATISE
OF THE
VIRTUES
OF
Dr. BATEMAN'S
PECTORAL DROPS:

The Nature of the Distempers They
Cure, and the Manner of Their Operation.

Published by the KING'S Letter Patents under
the Great Seal of Great Britain.

The Seal of  each Bottle.

To be Sold only by James Wallace, in New-York
Reprinted by J. Peter Zenger, in New-York,

Title-page of thirty-six-page pamphlet dated 1731, published by John Peter Zenger in New York on behalf of Bateman's Pectoral Drops. Original preserved in the New York Academy of Medicine Library, New York City, New York, U.S.A.

**HOT
but not
bothered**



CALADRYL* quickly and effectively relieves hot weather skin irritations, such as heat spots, sunburn, rashes, insect bites and nettle stings.

It combines the soothing, mildly-astringent action of calamine with the anti-pruritic, anti-allergic effects of Benadryl. Supplied as a smooth, non-greasy lotion or as a water-miscible cream, Caladryl provides symptomatic treatment for irritative skin conditions, whether of allergic or non-allergic origin.

*Trade Mark

C A L A D R Y L

LOTION—In bottles of 4 fluid ounces

CREAM—In tubes of approximately 1½ ozs.

DISPENSING PACK—Lotion: bottles of 80 fluid ounces. Cream: jars of one pound



PARKE, DAVIS & COMPANY, LTD. (Inc. U.S.A.) HOUNSLOW, MIDDLESEX. Tel: Hounslow 2361

347

J1

with

Achromy

TETRACYCLINE BUFFERED WITH SODIUM METAPHOSPHATE

Absorption is faster... blood level

ACHROMYCIN V is Lederle's latest contribution to medical science. It results from intensive research on methods of increasing the therapeutic potency of ACHROMYCIN tetracycline—already recognised as today's foremost self-sufficient broad-spectrum antibiotic. ACHROMYCIN V consists of ACHROMYCIN tetracycline buffered with sodium metaphosphate—believed to have the ability of binding certain metal ions present in the intestinal tract, which, when free, combine with some of the tetracycline and prevent its absorption. ACHROMYCIN V is now available to doctors who want the maximum benefits

from oral therapy with ACHROMYCIN. Initial clinical investigations show that ACHROMYCIN V possesses all the acknowledged clinical virtues of ACHROMYCIN tetracycline plus the following advantages:

It is more rapidly absorbed from the intestinal tract

It provides higher blood levels of tetracycline more rapidly

The high tetracycline levels attained with ACHROMYCIN V are noticeable even within the first hour or two after administration.

LEDERLE LABORATORIES DIVISION
CYANAMID OF GREAT BRITAIN LTD., LONDON W.C.2

achromycin V

higher

ACHROMYCIN V can be used for the same wide range of infections for which ACHROMYCIN tetracycline has been employed. SUGGESTED DOSAGE: As for ACHROMYCIN i.e. for the average adult, 1 Gm. DAILY in divided doses.

ACHROMYCIN V is presented in capsules containing 250 mg. ACHROMYCIN tetracycline, and 380 mg. Sodium Metaphosphate.

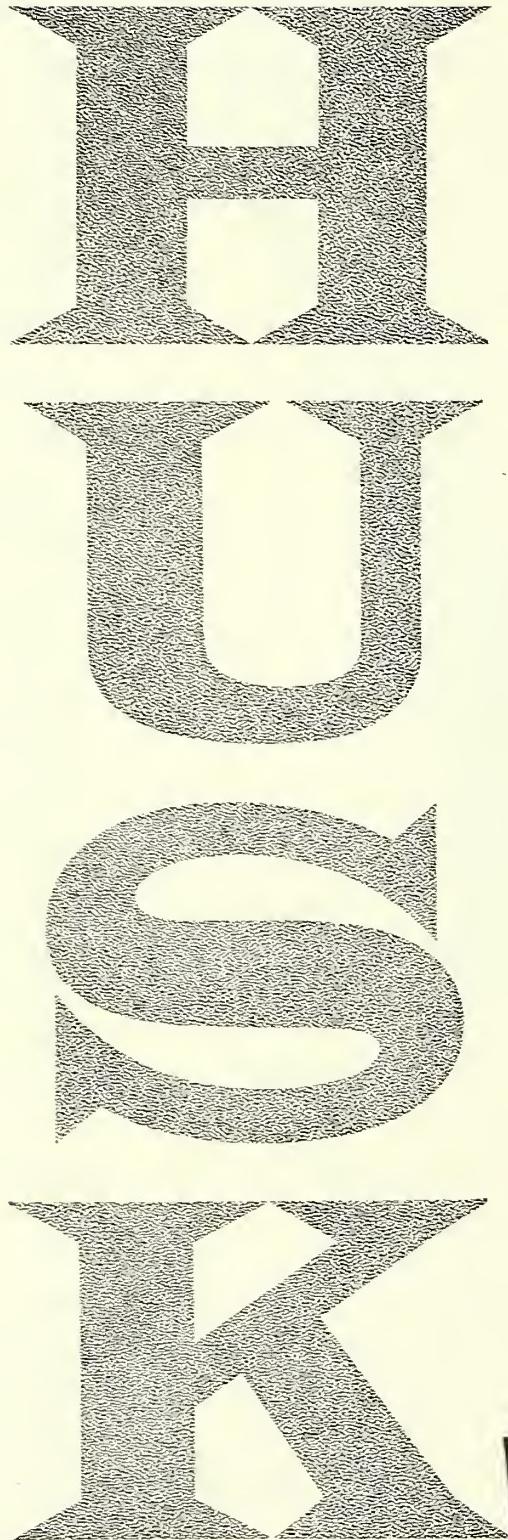
Bottles of 16, 100 and 1,000 Capsules.

*REGD. TRADE MARK



A vertical strip of approximately 15 colorful capsules, ranging in color from red at the top to purple at the bottom, is positioned along the right edge of the advertisement.

Lederle



I.C.I. discovers the effective treatment for husk in all farm animals

THE DISCOVERY by I.C.I. of a drug which eliminates Husk worms is an achievement of considerable importance to all livestock owners.

In the past, there has been no specific treatment for this disease and outbreaks invariably resulted in heavy economic losses.

Now, for the first time, Husk can be brought under control by this new I.C.I. product, which is presented in the form of 'Helmox'.

'Helmox' provides the farmer with a powerful weapon against the menace of husk in cattle, sheep, goats and pigs. Simple and convenient to use, it can be given easily in the feed or dissolved in water as a drench, and no changes in feeding are necessary.

'Helmox' is the only specific remedy. Given at the intervals recommended, it will eradicate lungworms from farm animals. Furthermore, there is every indication that monthly dosing during the summer will give them valuable protection against the disease.

'Helmox' is available in containers of 4 oz., 2 lb. and 7 lb. Retail prices: 12 -, 90 - and 276 - (plus P. tax). A 2 lb. tin dose approximately 20 average adult cattle or 50 calves or 115 sheep.

Full details of this I.C.I. discovery have been sent to all veterinary surgeons.

Farmers will respond immediately to the widespread advertising that is being undertaken in the national farming journals. Suppliers in country districts are urged to stock and make displays. Ample point-of-sale material is available. (*Patent applications pending.*)

HELMOX
TRADE MARK

IMPERIAL CHEMICAL
PHARMACEUTICALS DIVISION

INDUSTRIES LIMITED
WILMSLOW CHESHIRE



supplies of imported English remedies by name. Typical was the advertisement in the *Philadelphia Gazette* for December 1, 1768, by apothecary Thomas Preston. "At the Golden Mortar, opposite Black-Horse Alley," he announced as "Just imported from London" and for sale "All the most useful kinds of patent medicines, as Anderson's, Hooper's and Lockyer's pills, Bateman's drops, British oil, Bostock's, Squire's and Daffey's elixirs, Stoughton's bitters, Turlington's balsam of life, Dr. James's fever powders, Godfrey's cordial."



Two Bateman's Pectoral Drops bottles from the Samuel Aker, David and George Kass Collection, Albany, New York, U.S.A.

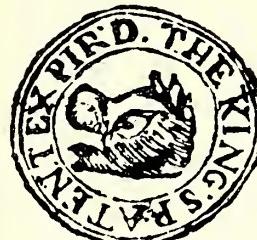
In the whole span of the *Boston News-Letter*, beginning in 1704, it was not until 1763 that a bookstore pulled out the stops with half a column of lively prose on behalf of Dr. Hill's four unpatented nostrums. One of them, the doctor claimed, was the restoration of a Greek secret which "convert[ed] a Glass of Water into the Nature and Quality of Asses Milk, with the Balsamic Addition."

The infrequency of fanciful newspaper promotion was compensated for to some degree in broadside and pamphlet. A critic of the medical scene in New York in the 1750's condemned physicians for using patent medicines learned about from "London quack bills." Often, that doctor complained, doubtless with exaggeration, those were their only reading matter⁽⁹⁾. Certainly the English promoter devised ingenious pamphlets and broadsides. Robert Turlington, for one, had issued a 46-page brochure replete with didactic text in the best eighteenth-century fashion. Asserting that the "Author of Nature" provided "a Remedy for every Malady," which "Men of Learning and Genius" have "ransack'd" the "Animal, Mineral and Vegetable World" to discover, Turlington avowed that his quest had led to the balsam of life, "a perfect Friend to Nature." Its therapeutic potency, he asserted, was proved by countless testimonials. Most of them were from humble people—a porter, the wife of a gardener, a hostler, a gunner's mate, a bodice-maker. Some bore a status of greater distinction—a "Mathematical Instrument-Maker" and the doorkeeper of the East India Company. The testimonials reached out toward America. One such certificate came from "a sailor before the mast, on board the ship *Britannia* in the New York trade"; another cited a woman living in Philadelphia. All were jubilant at their restored good health⁽¹⁰⁾.

Promotional items like the pamphlet, now rare, may have been abundant in the mid-eighteenth century. That type of printed matter, then as now, was likely to be looked at and thrown away. Another item of evidence survives in the records of a Williamsburg apothecary who ordered from the mother country in 1753 "3 Quire Stoughton's Directions"

and "½ Groce Stoughton Vials⁽¹¹⁾." The broadsides served a double purpose: not only did they promote the medicine, but they served as wrappers for the bottles in a day when labels affixed to the bottles were seldom used.

Whatever the amount of imported printed matter, American imprints seeking to promote the English patent medicines were rare indeed. The most intriguing example is the New York reprinting of a London promotional pamphlet on behalf of Bateman's pectoral drops. The American edition was dated 1731, and thus may well have been the earliest work on any medical theme printed in New York. The printer was John Peter Zenger, not yet an editor and three years away from the famous trial that was to link his name inextricably with the concept of the freedom of the Press⁽¹²⁾.



Seal used on Bateman's Pectoral Drops after patent had expired. From a broadside preserved in the Warshaw Collection of Business Americana, New York City, N.Y., U.S.A.

The popularity of the old English remedies, year in and year out, owed much to the fact that though the ingredients might vary (unbeknown to the customer), the shape of the bottle did not. Those nostrum promoters thus blazed a trail with respect to distinctive packaging. While the Turlington bottle was pear-shaped with sloping shoulders, Godfrey's cordial came in a truncated conical vial with steep-pitched sides. The way the various nostrums looked on a shelf made them so easily recognisable that even the most loutish illiterate could tell one from another.

Not all, by any means, of the packaged remedies—patented or not—which were produced in England were known in America. An English list of 1748 numbered 202 proprietaries, and it was admittedly incomplete⁽¹³⁾. It was no accident that determined which of the scores of English brands Americans bought. Most English exports of all kinds came to America from an area in the centre of London which had once been the location of many merchants who had migrated to New England during the seventeenth century. The newcomers had done business with erst-

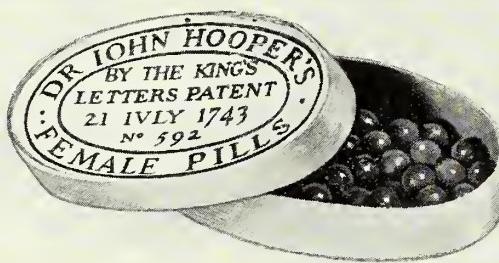


Left: British Oil bottles from the private collection of Samuel Aker, David and George Kass, Albany, New York, U.S.A. Right: British Oil bottle preserved in the Buffalo Historical Society, Buffalo, New York, U.S.A.

while colleagues who did not leave home, starting trade channels which continued to run. In the heart of that exporting district lay the headquarters of the major medicine exporters, Robert Turlington of Lombard Street, Francis Newbery of St. Paul's Churchyard, especially the Okell & Dicey firm of Bow Churchyard, Cheapside, which secured the patent for Bateman's pectoral drops, arranged for the New York reprinting of its promotional pamphlet, and vended most of the remedies whose composition Philadelphia pharmacists were later to standardise. Out of the hundreds of patent medicines in eighteenth-century England, those few brands of pills and drops on the lists of the major exporters were those with which ailing Americans continued to dose themselves.

On September 29, 1774, John Boyd's "medicinal store" in Baltimore followed the time-honoured custom of adver-

tising a fresh supply of medicines just arrived on the latest ship from London. To that intelligence was added a warning. Since non-importation agreements by colonial merchants



Hooper's Pills, patented July 21, 1743. Original Package shown here from the private collection of Samuel Aker, David and George Kass, Albany, New York, U.S.A.

were imminent, customers had best buy before supplies ran out. Boyd's prediction was valid. The Boston Tea Party of the previous December had evoked from Parliament repressive measures and, at the time of Boyd's advertising, the first Continental Congress was considering a policy that soon would halt all imports from Great Britain. Trade had been interrupted before, during the decade of tension, and war was shortly to cut off altogether the importation of Burlington's balsam and Bateman's pectoral drops.

Half a century of use had made many Americans dependent on the familiar English patent medicines. The war-time curtailment of imports accelerated a trend that had begun in a modest way at least as early as the 1750's — the compounding of English brands on American shores. The apothecary in Williamsburg, from 1752 through 1770, ordered from London sizable quantities of empty "Stoughton vials" and occasional lots of Daffy's elixir bottles. Formulas for both of those remedies had become official in the London and Edinburgh pharmacopias, as well as in various unofficial formularies. John Wesley, the Methodist divine, listed a few in later editions of his *Primitive Physic*. Thus no grave problem was posed the American druggist, if only he had vials of proper shape to fill. During the Revolution, of course, no bottles could be imported, but the refilling of empties went on apace, and other patent medicines besides Stoughton's and Daffy's, with proprietary rights not yet relinquished to the public domain, were compounded and sold to American customers.

In 1782 the Baltimore post office, at a time when the fighting was over but peace negotiations were still under way, signalled the return to the American market of made-in-Britain patent medicines by advertising in the *Maryland Journal* half a dozen of the familiar brands. Two years later a New York apothecary turned to tortured rhyme to convey the same message through the columns of the *New York Packet*:

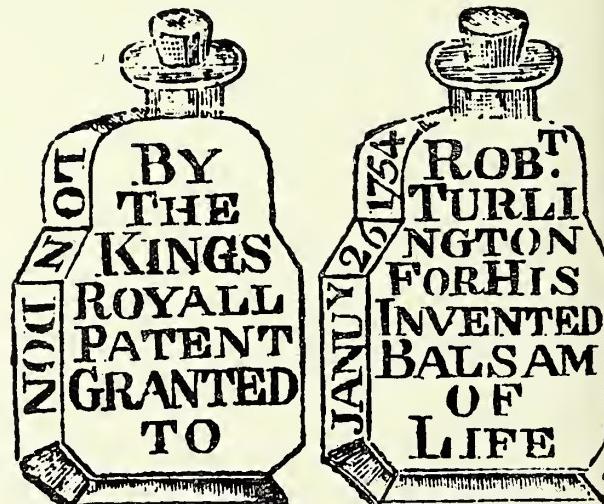
Medicines approv'd by royal charter,
James, Godfrey, Anderson, Court-plaster,
With Keyser's, Hooper's, Lockyer's Pills,
And Honey Balsam Doctor Hill's;
Bateman and Daffy, Jesuits drops,
And all the Tinctures of the shops,
As Stoughton, Burlington and Grenough,
Pure British Oil and Haerlem Ditto. . . .

If peace brought British patent medicines back to American shops, it also made available once more imported empty bottles of the old familiar shapes. American apothecaries continued to fill them. Indeed, the British medicines never won back their pre-war sales ascendancy from the American imitations. The basic reason is suggested in the records of Jonathan Waldo, an apothecary in Salem, Massachusetts⁽¹⁴⁾. The imported brand of Burlington's balsam, he noted during the 1790's, was "very dear" at 36 shillings a dozen, whereas his "own" sold for only 15 shillings.

It was the same with other nostrums, and in the early years of the new century American manufacturers began to increase the price differential by fabricating empty vials which undercut the cost of imported bottles. The standard charge for the old English vials under the British monopoly had been \$5.50 a gross. By the early 1830's, one American glass factory had reduced the price to under two dollars⁽¹⁵⁾. For decades thereafter, although wholesale drug catalogues continued to specify two grades of patent medicines, termed "English" and "American," or "genuine" and "imita-



An assortment of packages of English and American brands of Hooper's Female Pills from the private collection of Samuel Aker, David and George Kass, Albany, New York, U.S.A.



Turlington's Balsam of Life bottles as pictured in a brochure dated 1755-57, preserved in the Pennsylvania Historical Society, Philadelphia, Pa., U.S.A. According to Turlington, the bottle was adopted in 1754 "to prevent the villainy of some persons, who, buying up my empty bottles, have basely and wickedly put therein a vile spurious counterfeit sort."

tion," the American had the lion's share of sales.

"Many, very many, days were spent . . .," recollects a Boston druggist of his apprentice days in the 1820's, "in compounding these imitations, cleaning the vials, filling, corking, labelling, stamping with facsimiles of the English Government stamp, and in wrapping them, with . . . little regard to the originator's rights, or that of their heirs. . . ." (16).

Countless American retailers and wholesalers did likewise, taking their formulas from various sources, official and otherwise, and evidently improvising with a free hand. As the years went by and that therapeutic *laissez-faire* continued to operate, the state of production became chaotic. The old English patent medicines, of dwindling English vintage and burgeoning American manufacture, were as familiar as laudanum or castor oil. But any uniformity of composition had been lost.

Restandardised

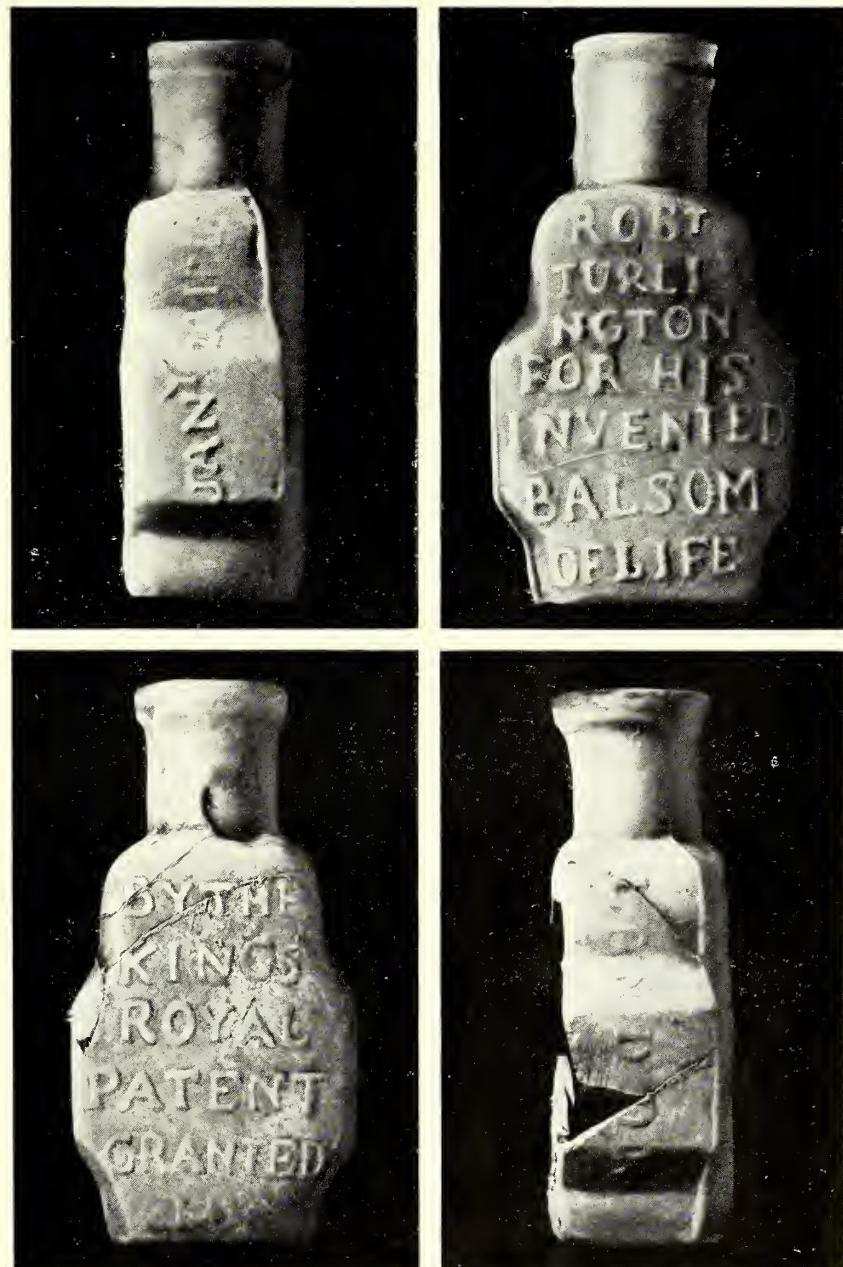
That confusion was what perturbed the trustees of the Philadelphia College of Pharmacy and caused them to set a committee to work to restandardise the ancient proprietaries. Those pharmacists soon concluded that, where patent specifications had existed, the information provided by the original proprietors served "only to mislead." Current American practices, moreover, were so divergent as to be shocking. In some cases, when two recipes bearing the same old English name were compared, they were found to contain not one ingredient in common. So the committee set forth boldly to strip those English nostrums of "their extravagant pretensions," and to devise formulas as simple and inexpensive as possible while yet retaining the "chief compatible virtues" ascribed to them on the traditional wrappers (17).

Anderson's Scots pills, for example, had been a mild purgative throughout its long career, and so it remained, chiefly a mixture of aloes, colocynth, and gamboge. Bateman's drops, in the committee formula, was opium and camphor—not unlike paregoric—with catechu and colouring and flavouring. Godfrey's and Dalby's also contained opium, although to end the tremendous variation in current practice an exact amount of opium per unit of medicine was suggested as standard. Turlington's "balsam of life" became the official formula of compound tincture of benzoin, with balsam of peru, myrrh, and angelica root added. A similar reformulation was accomplished for British oil, Hooper's female pills, and Steer's opodeldoc.

Thus had the old English patent medicines reached a new point in their American odyssey. They had first crossed the Atlantic to serve the financial interests of men who had fathered them or their heirs. During the American Revolution they had lost their British paternity while retaining their British names and shapes. The Philadelphia pharmacists, while adopting them and reforming their character, did not seek to monopolise their labour, as had the original proprietors. They now could work for every man.

So popular was the Philadelphia reformulation that it

was twice reprinted within the following fifteen years. There were other tokens of the continuing rôle in American therapy of the old English medicines. In the early 1850's a young pharmacist in upstate New York worked hard, using



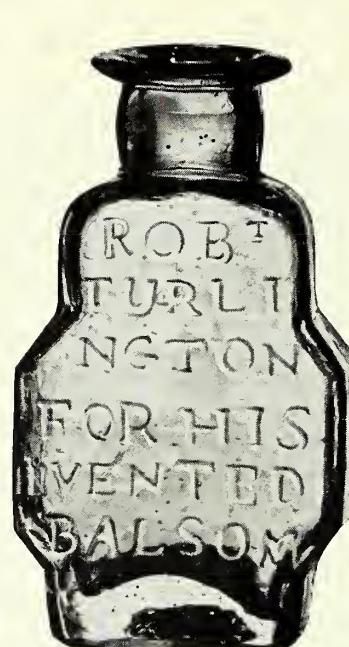
Turlington's Balsam of Life bottle (all four sides) found on old trading-post site of Fort Atkinson, North Dakota, U.S.A.; now preserved at Smithsonian Institution, Washington, D.C.

"old alcohol barrels for tanks," concocting Bateman's and Godfrey's and Steer's remedies (18). In Cincinnati a young man destined for great renown in the area of botanical pharmacy, John Uri Lloyd, expended hours of his apprenticeship making Godfrey's and Bateman's, ten gallons to the single batch (19). In Wisconsin another druggist bought Godfrey's cordial bottles at \$1.50 a gross, filled them, and sold that ancient medicine at 4 oz. for twenty-five cents (20).

Farther west the same familiar names appeared. Indeed, the old English patent medicines had long since moved westward with fur trader and settler. As early as 1783 a trader in western Canada, shot by a rival, called for Turlington's balsam to stop the bleeding, alas in vain (21). In



Turlington's Balsam of Life bottle, preserved in the Archaeological collections at colonial Williamsburg, Virginia, U.S.A.



Turlington's Balsam of Life bottle, preserved at the Buffalo Historical Society, Buffalo, New York, U.S.A.



Turlington's Balsam of Life bottle, preserved in the McKearin Collection, Hoosick Falls, New York, U.S.A.

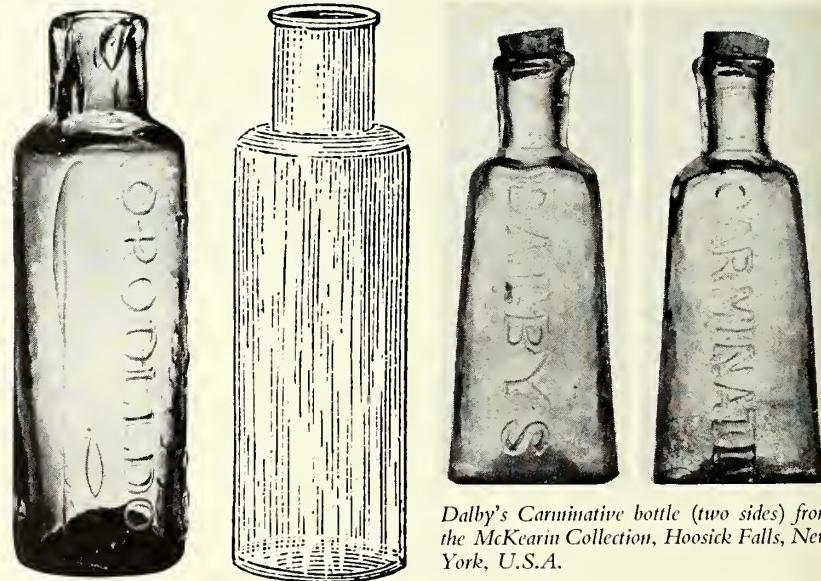
1800 that inveterate Methodist traveller, Bishop Francis Asbury, resorted to Stoughton's elixir for an intestinal complaint⁽²²⁾. In the Dakotas, Turlington's balsam, both domestic and imported, played a significant rôle in Indian trade. One pear-shaped British bottle has been unearthed from an Indian grave—one of the few cases on record wherein a patent medicine had been felt to possess a *post-mortem* utility⁽²³⁾. One of the first San Francisco newspapers, the *California Courier*, established on the heels of the Gold Rush, contains an advertisement for Stoughton's bitters.

On the whole, however, newspaper advertising of the English proprietaries became increasingly rare after the Philadelphia College of Pharmacy pamphlet had been issued. Such advertising was largely gratuitous. Since the English patent medicines had become every druggist's property, people who felt the need of taking a dose of one of them would expect every druggist to have them in stock.

Yet, as the years went by, and advertising did not keep the names of the old English medicines before the eyes of new generations of customers, their use declined. Having lost their original proprietary status, they were playing a different rôle. New American proprietaries had stolen the appeal and usurped the function which Bateman's drops and Turlington's balsam had possessed in eighteenth-century London and Boston and Williamsburg. As part of the cultural nationalism that had accompanied the War for Independence, American brands of nostrums had come upon the scene, promoted with all the vigour and cleverness once bestowed in English—but not in American colonial—advertising upon Dalby's carminative and others of its kind.

While those English names retreated from American advertising during the nineteenth century, vast blocks of

space in the ever-larger newspapers were devoted to extolling the merits of Dyott's patent itch ointment, made in Philadelphia, and Brandreth's pills, made in Sing Sing, New York. More and more Americans were learning how to read, as free State-financed education spread. Persuaded by the frightening symptoms and the glorious promises, citizens with a bent toward self-dosage flocked to buy the American brands. Druggists and general stores stocked them and made fine profits. In 1885, while bottles of British oil sold two for a quarter (25 cents) in a Wisconsin drug store, one bottle of Jayne's expectorant retailed for a dollar. The old English nostrums were muscled aside by the multitude of brash American brands. A *Thesaurus of Proprietary Preparations*



Left : Opodeldoc bottle from the private collection of Mrs. Leo F. Redden, Kennmore, New York, U.S.A. Right : Opodeldoc bottle illustrated in the 1879 Catalogue of Hargerty Bros., New York City, N.Y.

published in the last year of the nineteenth century, indeed, spoke of Godfrey's, Bateman's, Turlington's, and other of the old patent remedies as "extinct" (24).

That was an exaggeration. Although they were feeble, they were not dead. Wholesale drug catalogues continued listing the old English patent-medicine bottles, both filled and empty. City druggists dispensed them over their counters, and the peddler's wagon carried them into remote rural regions. But the medical scene, as the new century opened, was changing rapidly. Improvements in medical science, stemming in part from the discovery of the germ theory of disease, were providing a better yardstick against which to measure the therapeutic quality of proprietary remedies. Medical ethics were likewise advancing, and doctors and pharmacists in increasing numbers were lambasting the brazen effrontery of American cure-alls advertised in newspaper and on roadside sign. Reform journalists and governmental officials joined in arousing the public against cheap whisky posing as a cure for consumption and soothing syrups filled with opium. Then came a revolution in public policy. After a long and frustrating legislative prelude, the Congress passed and President Theodore Roosevelt signed, in June 1906, the first national Pure Food and Drugs Act, which contained clauses aimed at curtailing the worst features of the patent-medicine evil.

Although the old English patent medicines had not been the target toward which reformers had taken primary aim, those ancient remedies were governed by provisions of the new law. The editors of a drug-trade paper issued warnings and gave advice. It was still the custom, they noted, to wrap bottles of ancient patent medicines, like Godfrey's cordial and Turlington's balsam, in facsimiles of the original circulars, on which were printed extravagant claims and fabulous testimonials dating back some 200 years (25). The new law was not going to permit such eighteenth-century exaggerations. Statements on the label that were "false or misleading in any particular" were banned.

A few manufacturers, as the years went by, fell foul of that and other provisions of the law. In 1918 a firm was fined \$50 for marketing an adulterated and misbranded version of Bateman's pectoral drops, adulterated since the alcohol and opium contained in the medicine fell below the label claims, and misbranded since the wrapper claimed the drops "effective as a remedy for all fluxes, spitting of blood, agues, measles, colds, coughs, . . . , stone and gravel in the kidneys, bladder, and urethra, shortness of breath [and] straightness of the breast. . . ." (26). Okell & Dicey had scarcely promised more. By twentieth-century standards—so the Government charged—such claims were false and fraudulent.

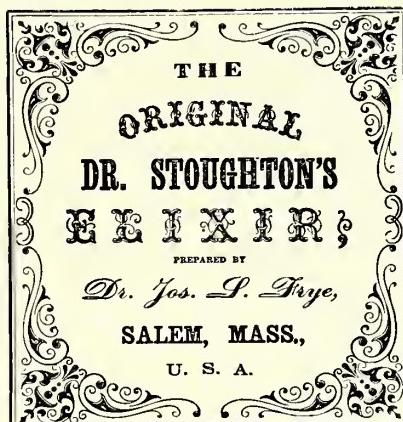
Action was also taken against Hooper's female pills, as marketed in various versions by three Philadelphia concerns between 1919 and 1923. Some of the packages bore red seals, some green, and some black, but the labelling of all claimed them to be "a safe and sovereign remedy in female complaints." And there was an eighteenth-century echo to the promise that the pills would work a sure cure "in all hypochondriac, hysterick or vapourish disorders." No pill made essentially of aloes and ferrous sulphate, said the Government experts, could do those things. Nor did the manufacturers, in court, seek to say otherwise. Whether the seals were green or red, whether the packages were seized in Washington or Worcester, Massachusetts, the result was the same. No party appeared in court to claim the pills, and they were condemned and destroyed (27).

Under the 1906 law there were several other cases in which eighteenth-century braggadocio was forced into circumspection. And in 1938 the Congress enacted, and President Franklin D. Roosevelt signed, an even more stringent federal food, drug, and cosmetic control statute. Thus were abuses handled. For those who persisted in using the old formulas with proper caution, recipes were still available. Turlington's balsam remains as an unofficial synonym of compound tincture of benzoin of the United States Pharmacopoeia. Various American pharmaceutical recipe books carry one or more of the ancient names. Formulas for most of the old English patent medicines with which the Philadelphia pharmacists concerned themselves in 1824 are included in the 1953 edition of *Pharmaceutical Formulas* published by THE CHEMIST AND DRUGGIST. And several of the ancient proprietaries are still manufactured by the lineal descendants of firms which first put them on the market.

Drug "Revolution"

None the less, the impact of the early English patent medicines in America has been largely absorbed and forgotten. Changing views of therapy, increased caution respecting narcotics, the drug revolution of the past quarter of a century, have outmoded them without any question. Some of the newer drugs can truly perform certain healing miracles claimed for the old English patents by their pretentious proprietors in a mistier age of medical science. The more recent import from Britain—penicillin—may prove to have an even longer life on American shores than did Turlington's balsam or Bateman's pectoral drops. Still, 200 years is a long time.

The time, at any rate, seems ripe to write the epitaph of the old English patent medicines in America. That they are now a chapter of past history is a token of medical and pharmaceutical progress for mankind.



Label for Stoughton's Elixir as manufactured by Dr. Jos. Frye of Salem, Massachusetts.
Courtesy, Essex Institute, Salem, Mass.



Two early twentieth-century Godfrey's Cordial bottles manufactured in the U.S.A. Now preserved at the Smithsonian Institution.



Godfrey's Cordial bottles from the private collection of Samuel Aker, David and George Kass, Albany, New York, U.S.A.

Elixir Salutis:

THE CHOISE DRINK OF HEALTH, OR, Health-Bringing Drink.

BEING

A Famous Cordial Drink, found out
by the Providence of the Almighty, and Ex-
perienced a Most Excellent Preservative of
Man-kind,

A SECRET
Far beyond any Medicament yet known,
And is found so agreeable to Nature, That
it Effects all its Operations, as Nature would
Have it, and as a Virtual Expedient proposed by
her, for reducing all her Extremes unto an equal
Temper; the same being fitted unto all Ages, Sexes,
Complexions and Constitutions, and highly fortifying
Nature against any Noxious humour, invading or
offending the Noble Parts:

Never Published by any but by Me
ANTHONY DAFFY, Student in Physick.

LONDON,
Printed with Allowance for the Author by T. Gibbons, 1673.

Title-page of eight-page pamphlet by Anthony Daffy extolling the virtues of his Elixir Salutis, published in London in 1673.

Courtesy, British Museum

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A lengthier and more fully documented treatment of the theme discussed in this article is being published in the United States. In addition to thanking the individuals and depositories referred to in the notes and captions, the authors wish to express their appreciation to the following: the American Antiquarian Society, Worcester, Mass.; the American Philosophical Society, Philadelphia; Bella C. Landauer of the New York Historical Society; Moreau B. C. Chambers of Williamsburg, Virginia; the Library of the College of Physicians and Surgeons, Philadelphia; Oliver Field, the American Medical Association, Chicago, Illinois; the National Library of Medicine, Washington, D.C., and Cleveland, Ohio; Carl C. Pfeiffer of the Emory University School of Medicine; Owen H. Waller, THE CHEMIST AND DRUGGIST; and C. Malcolm Watkins of Washington, D.C. Some material cited in the article was found by one of these authors (J.H.Y.) while holding a Fellowship from the Fund for the Advancement of Education and Grants-in-Aid from the Social Science Research Council and from Emory University.

ECHOES OF THE PAST SO SAFE AND EASIE A METHOD

From *The Grand Elixir*, by Alexander Pope. (*The Guardian*, 1713), Everyman's Library.

"... I HAVE for several Years, both at home and abroad, made this Science my particular Study, which I may venture to say I have improved in almost all the Courts of Europe; and have reduced it into so safe and easie a Method, as to practise it on both Sexes, of what Disposition, Age or Quality soever, with Success. What enables me to perform this great Work, is the use of my *Obsequium Catholicon*, or the *Grand Elixir*, to support the Spirits of human Nature. This Remedy is of the most grateful Flavour in the World, and agrees with all Tastes whatever. 'Tis delicate to the Senses, delightful in the Operation, may be taken at all Hours without Confinement, and is as properly given at a Ball or Playhouse as in a private Chamber. It restores and vivifies the most dejected Minds, corrects and extracts all that is painful in the Knowledge of a Man's self. One Dose of it will instantly disperse it self through the whole Animal System, dissipate the first Motions of Distrust so as never to return, and so exhilarate the Brain and rarifie the Gloom of Reflection, as to give the Patients a new flow of Spirits, a Vivacity of Behaviour, and a pleasing Dependence upon their own Capacities.

"LET A Person be never so far gone, I advise him not to despair; even though he has been troubled many Years with restless Reflections, which by long Neglect have hardened into settled Consideration. Those that have been stung with Satyr may here find a certain Antidote, which infallibly disperses all the Remains of Poison that has been left in the Understanding by bad Cures. It fortifies the Heart against the Rancour of Pamphlets, the Inveteracy of Epigrams, and the Mortification of Lampoons; as has been often experienced by several Persons of both Sexes, during the Seasons of Tunbridge and the Bath.

"I could, as further Instances of my Success, produce Certificates and Testimonials from the Favourites and Ghostly Fathers of the most eminent Princes of Europe; but shall content my self with the Mention of a few Cures, which I have performed by this my *Grand Universal Restorative*, during the Practice of one Month only since I came to this City."

ON JUNE 6 TOOK PLACE

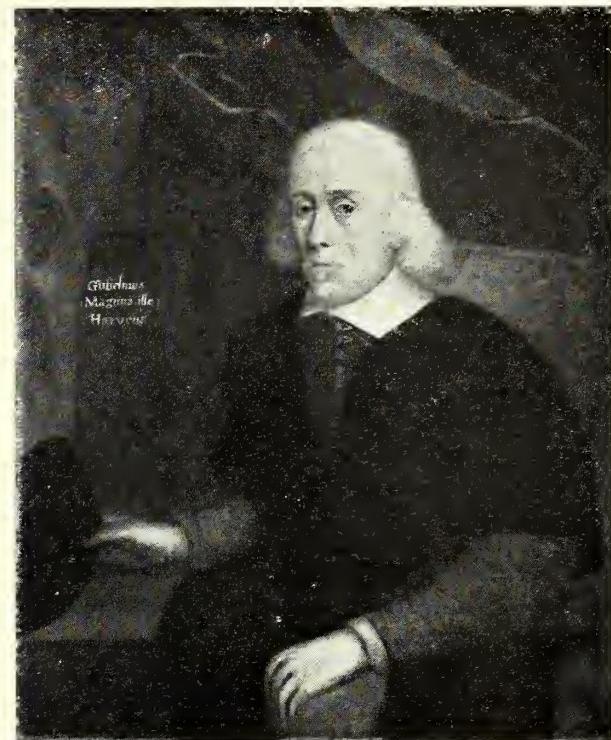
THE THIRD CENTENARY

OF THE DEATH OF

WILLIAM

HARVEY

1578-1657



William Harvey. From a portrait by an unknown artist in the National Portrait Gallery. Reproduced by permission of the Gallery.

Charles Singer, M.D., D.Litt., D.Sc., F.R.C.P.

MEDICINE could not begin to develop along scientific lines until clear accounts of the workings of the organs of the body became available. For the printed word that began with the publication at Frankfurt in 1628 by William Harvey of a badly printed work in difficult Latin, the title of which can be rendered as *An Anatomical Dissertation concerning the Motion of the Heart and Blood in Animals*. It is dedicated to his patient, King Charles I. In the "Introduction" he compares the King in his kingdom with the heart in the midst of the body, a tag borrowed from Harvey's favourite author, Aristotle. Harvey's little book of only seventy-two pages is very convincing but is uncommonly hard reading, even in translation. As the general nature of Harvey's discovery of the circulation of the blood is familiar, I shall not discuss the book but rather certain circumstances related to the man and to the history of his idea.

Harvey's "Discovery"

First, to be pedantically exact, Harvey did not discover (primarily=expose to view, reveal) the circulation of the blood. What he discovered was that the blood must circulate and that is not quite the same thing. He demonstrated that blood must flow (a) from the veins of the body towards the right atrium and so into the right ventricle; (b) from the right ventricle through the lungs; (c) from the lungs to the left atrium and so to the left ventricle; (d) from the left ventricle via the arteries to the body as a whole; and (e) from the arteries in the body as a whole back to the veins. He knew nothing of the capillaries and therefore did not reveal but only inferred (b), (c) or (e). The "capillaries," as we now call them, that are involved in these passages, could be seen only with the aid of the microscope, the effective use of which came too late for Harvey. The circulation in the capillaries of the lungs was first seen by the Italian Marcello Malpighi in 1661 (see Fig. 6), and therefore after Harvey's death. The circulation in the peripheral parts

of the body was first made public even later, by the Dutch draper Antoni van Leeuwenhoek about 1688 (see Fig. 6). Thus the propagation of Harvey's discovery took a great part of the seventeenth century.

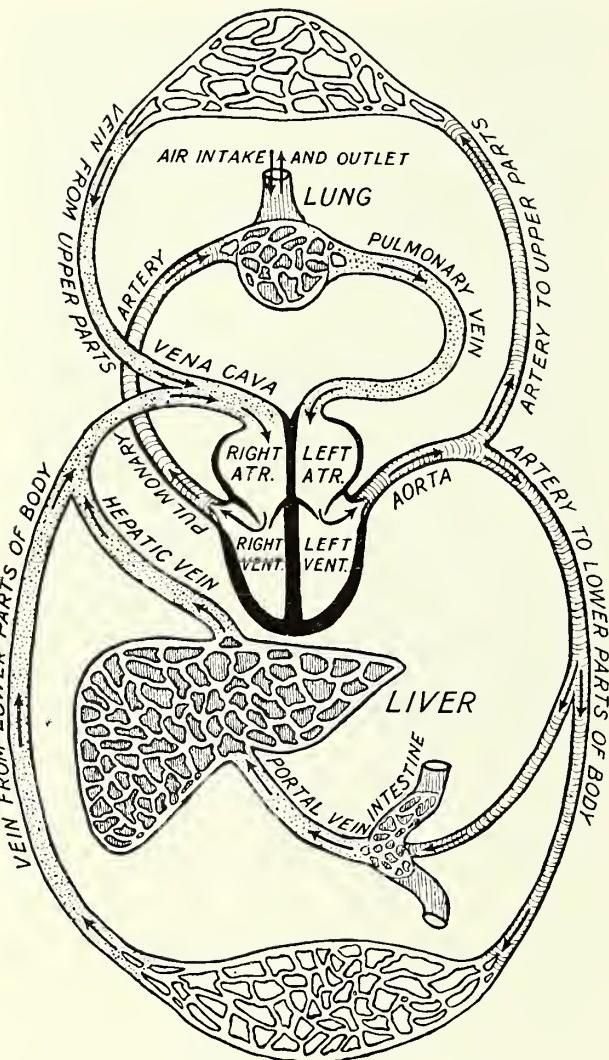
Were there any foreshadowings of that "discovery" before the publication of Harvey's book in 1628? Yes there were, and even by Harvey himself. After studying at Cambridge he had gone for a time to Padua, then the best scientific university in Europe. Two teachers there of special distinction deeply influenced him. One was Hieronymo Fabrizzi of Acquapendente, a most able anatomist and physiologist. The other was Galileo, the father of modern physical experimentation. To the former, Harvey repeatedly acknowledged his indebtedness. The crucial test of his discovery was completely in the manner of the latter.

In 1616 Harvey gave a course of lectures on anatomy at the Royal College of Physicians in London. His notes for those lectures have survived. They are hard to decipher, both because his handwriting was extremely bad and because he was writing, for his own use, in a queer mixture of abbreviated Latin and English. Among them is a passage which may be thus rendered:—

"From the structure of the heart I consider that the blood is constantly passed through the lung into the aorta as by two clacks [=valves] of a water bellows [=pump] to raise water and, from the action of a bandage [on the arm, Fig. 4], that there is a transit of blood from arteries to veins. It is thus demonstrable that a perpetual motion of the blood in a circle is caused by the heart beat."

What he Learned from his Teacher

Thus Harvey had grasped the idea of the circulation not less than twelve years before the publication of his great work. He owed the knowledge of the action of the valves of the veins to his teacher Fabrizzi (Fig. 4), but the knowledge of the action of the heart valves was much older.



2. Diagram of the circulation of the blood.

That the heart valves secured a one-way passage was familiar even to the ancients, and notably to Galen (c. 130–201 A.D.), a Greek writer with whose works Harvey was quite familiar.

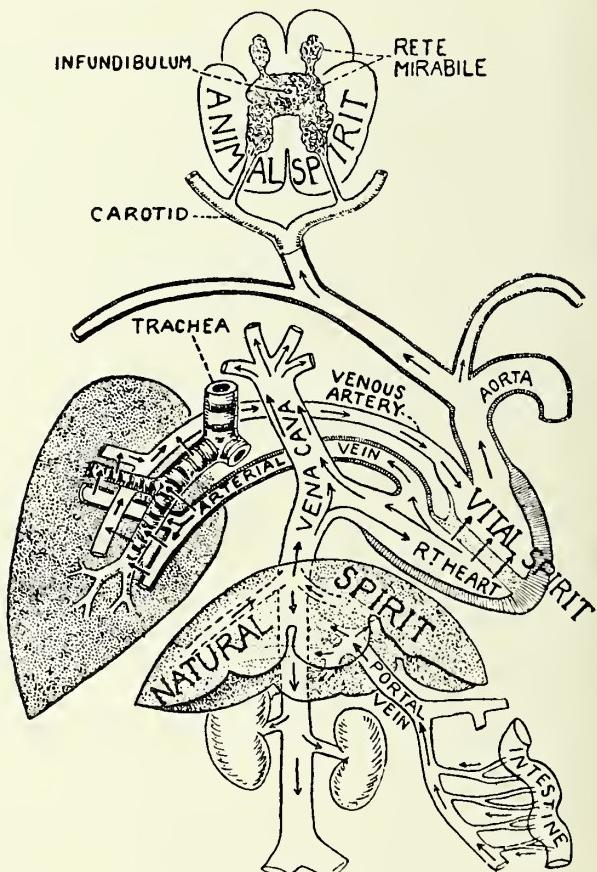
That blood went to the lungs was thus clear from of old, but why did Harvey believe that the blood came back again from the lungs, and why did the ancients not think so? To answer those questions we must consider certain beliefs on the workings of the body that were current in Harvey's time and for centuries earlier. Here we must warn the reader that much has been written on inklings of a circulation before Harvey's time. Some of those guesses or inferences are most interesting, but they do not concern us here because the overwhelming majority of Harvey's contemporaries, and most of his successors for half a century, held Galen's view of the action of the heart. To it we therefore turn (Fig. 3).

Galen believed that chyle, brought from the digestive system by the portal vessel, reaches the liver, and that that organ has the power of enduing it with a spirit (*pneuma*), innate in all living substance, which came to be called the *natural spirit*. Thus endued it became venous blood. That was distributed by the liver—believed to be contractile—through the venous system, ebbing and flowing in the veins. One great branch of the venous system, an extension of a great trunk direct from the liver, was the cavity that makes up what we now call the right atrium plus right ventricle, in fact the right side of the heart. The venous blood that entered that had three possible fates: (a) Some of it ebbs

back into the general venous system, having parted with its fumes or impurities; (b) some of it, with those fumes, goes to the lung *via* what we now call the pulmonary artery; in the lung the fumes are exhaled through the windpipe, hence the poisonous character of rebreathed air; (c) a small fraction of the blood in the right ventricle, trickling through minute (imaginary) channels in the interventricular system, drips slowly into the left ventricle. There, meeting the air brought from the lung by what we now call the pulmonary vein, those drops, already charged with natural spirit, are elaborated into the higher *vital spirit*, which is the active principle of the bright arterial blood (Fig. 3).

That blood is distributed through the arteries to all parts of the body. Some passes to the so-called "rete mirabile" [=marvellous network] at the base of the brain, and becomes charged with *animal spirit* derived from the brain. It is distributed by the nerves, believed to be hollow. The "rete mirabile," absent in man, is well developed in cattle. It was from experiments and observations on them that Galen's remarkable system was derived. He so impressed later ages that innumerable anatomists thought they saw a "rete mirabile" in the human brain, where there is no such structure.

It will be observed that, according to the ancient view, something is sent out into the lungs, namely the exhaled fumes, and something is taken into the lungs by the arterial system from the air, namely inhaled "spirit," thus almost, but not quite, completing a circulation, at least so far as the lungs are concerned. But since the valves of the heart permit movement in only one direction, what happens to all the blood that leaves the heart and cannot return? To that question there was an answer made by those who came before Harvey, but to understand their answer one must put oneself in their place. Until Harvey and, indeed, beyond,



3. Diagram of Galen's physiological system.

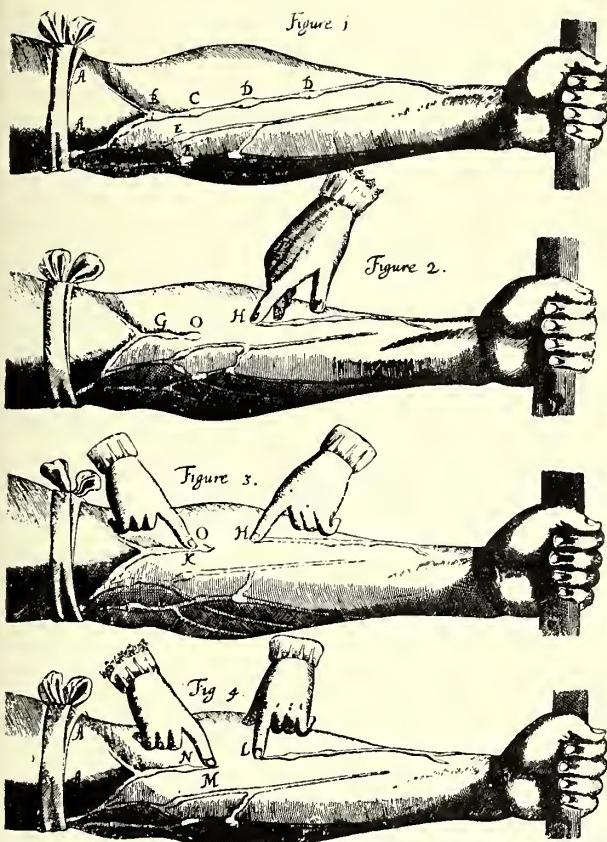
Guilielmus · Harvey · M.D.



WILLIAM HARVEY

from a painting by Cornelius Janssen in the library of the Royal College of Physicians, London, first published in CIBA Symposium.
Reproduced by courtesy of the Royal College of Physicians specially for the Chemist and Druggist.





4. Experiments on bandaged arm. From Harvey's "An Anatomical Dissertation concerning the Motion of the Heart and Blood in Animals," taken by him from a work by Fabrizzi.

there had been a persistent tendency to compare the workings of man's body, the *microcosm* or "little world," as it was called, to that of the universe, the *macrocosm* or great world. In the great world, as we see it, there is indeed an obvious sort of circulation. Water is carried by rivers to the sea, there it evaporates and forms clouds, and those precipitate on the land as rain. The rain irrigates the soil, is absorbed by plants, and causes the growth of corn and other sorts of vegetation. Some flows back to the rivers. Moreover, as corn, for example, ripens to dryness, a further fraction of the water evaporates, and thus goes back to the clouds whence it came. Such a circulation, compared to the circulation in man's body, was illustrated in a book on anatomy published in the year 1651 by an English friend of Harvey (Fig. 5).

There is much in Harvey's book that we need not discuss here but, in this matter, he introduces not only a new point but a quite new way of considering the bloodstream, which makes it something very different from mere irrigation. He introduces into physiology the quantitative method, which he owed (directly or indirectly) to Galileo. Adopting that method he adduces an argument of clarifying simplicity. Thus consider the capacity of the ventricle. It holds about 2 oz. of blood. The pulse beats about seventy-two times a minute, and 72×60 an hour. In the course of that hour the left ventricle throws into the vessel emerging from it $72 \times 60 \times 2 = 8,640$ oz. = 38 stone 8 lb.—more than three times the weight of a normal man. Where can all that blood come from? Where can it all go to? It is no mere irrigation but a mighty torrent! The valves at the root of the great vessel prevent regurgitation. It cannot come from the ingested food and drink, for no one could consume so much in one hour! It cannot go to and remain in the lungs, for they would soon burst and spurt blood! It must come from the arteries, which also contain blood, but the blood can reach

the veins only through the body tissues. That conclusion is reinforced by a simple piece of knowledge. The proportion of the weight of the blood to that of the rest of the body is known, and it is well known, too, that, if an artery of any size were cut, and no remedies applied, a person would bleed to death in a very short time. The bleeding would get slower and slower until it finally ceased as the blood was exhausted and death approached. The reason must be that the blood, being lost, does not reach the veins, and so cannot return again from them to the arteries. Blood does not escape in the same rapid way from severed veins, because their walls are much flabbier, have less propelling power and are less full.

But how does that blood get from the venous system to the left side of the heart? And how, too, does it get from the arteries into the veins? Those are the crucial questions in the whole discussion. We know the answers to them now. Let us see how Harvey sought to answer them.

Blood can enter the right atrium from the vena cava, the opening to which is patent and obvious. It can then enter the right ventricle, the opening into which from the right atrium is equally obvious, though guarded by valves. From the right ventricle there is an exit which we now call the pulmonary artery. If it enters that vessel it cannot regurgitate again for, as Harvey says, "there are three semi-lunar valves at its opening which completely prevent blood sent into the vessel from returning to the cavity of the heart."

The whole passage which follows is saturated with Galen, who had gained an idea of the action of those valves without being able to draw the conclusions that Harvey reached. "From Galen," says Harvey, "that divine man, that Father of Physicians, it clearly appears that blood passes through the lungs in small branches" [from the pulmonary artery to the pulmonary vein].

Now it may reasonably be doubted here whether Harvey has rightly interpreted Galen. In saying that in the works of Galen the matter clearly appears, he is certainly giving that writer something much more than his due. The passages



5. Detail of title page of Nathaniel Highmore's book *Corporis humani disquisitio anatomica*, The Hague, 1651. It shows the circulation of the blood in the body or Little World as the likeness of the circulation of water in nature or the Great World.

in the works of Galen that refer to the matter are neither clear nor even consistent. There is, however, one passage in Galen's voluminous works which may bear the interpretation that Harvey put on it. Whether Galen meant it as Harvey interprets it we need not discuss. The important thing, however, is that Harvey, with all his respect for Galen, has the instincts of an investigator and can see the real truth through Galen's verbiage. It is one of many cases in the history of science in which a truth, dimly seen and therefore obscurely expressed by an earlier writer, awaited a later to grasp its importance and to express it adequately. To whom shall the honour be given? It is a question that can never be answered fully, because science is a continuous process. Harvey's respect for Galen is a form—perhaps some may think it at times a rather tiresome form—of the modesty that has characterised many great discoverers. He goes on attributing to Galen what is effectively his own discovery: "The heart then is continually receiving and expelling blood by and from its ventricles and for this end is equipped with four sets of valves—two for the expulsion of blood [=the semi-lunar valves] and two for its admission [the bicuspid and tricuspid valves]. . . . As then the blood is continually flowing into the right side of the heart

and flowing out of the left side of the heart, it is obvious that it must somehow pass from the vena cava into the aorta. . . . It thus clearly appears that the blood must penetrate through the porosities of the lung from the right to the left ventricle."

Harvey as Man

A little about Harvey as a man. He was dark and small in build, reticent in bearing, of spotless professional reputation and very generous in action, but of a rather caustic wit though respected by all who knew him, even when they differed from him. He seems to have been easily roused to anger. He was a strong Royalist and served with the King's army, being with His Majesty at Oxford. After the King's capture and execution Harvey was not molested by the authorities of the Commonwealth. He was devoted to the Royal College of Physicians but declined its presidency. Lastly, concerning

before 1648, when Harvey was seventy and Janssen left England. It is a fine, thoughtful head, but not, to my mind, at all suggesting a great experimenter. Artists, like other men, are affected by social claims, and in that age the thinker, scholar and legal luminary were specially esteemed. At a guess, one would say that the head is of some grave, learned and slightly cynical judge. How different in expression, though not in features, is the eager forward-looking face of the portrait of Harvey recently discovered by Sir Geoffrey Keynes at Rolls Park, Essex. It is of about 1622, and represents him before he had attained his great fame. There is, to my thinking, something more than the passage of years between the two pictures. There is a fashion of painting and of esteem of the subject of the painting. In 1622 there was no reason to treat Harvey as one deeply respected, but he had an established reputation and was known as an industrious experimenter and thus, in his own sphere, a man of action. I therefore prefer to think of Harvey, the father of physiology, as represented by the Rolls Park picture. The one seems to me to be the image of a man as we know him to have been, the other largely of a man as the artist thought he should have been.

MEDICAL ABSTRACTS

VITAMINS AND HEALTH IN WARM CLIMATES

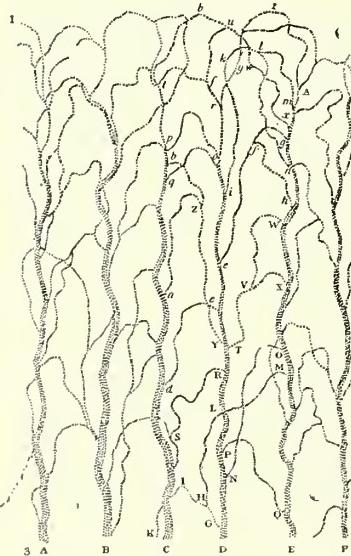
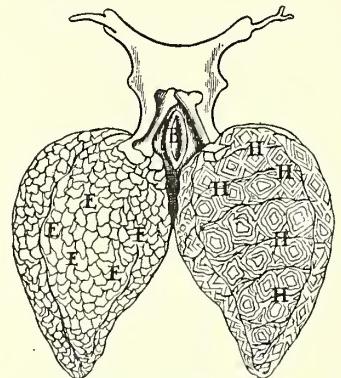
SEVENTY-NINE medical students took part in an experiment conducted by Glaser and Livett to determine the effect of vitamin-B complex on healthy people in a warm climate (Singapore) (*British Medical Journal*, 1957, **1**, 1331). Earlier research workers had suggested that it is possible that the increase in enzyme activity resulting from the raising of body temperature would increase the demands for various vitamins, especially those of the B complex, and that mild symptoms of lassitude would follow which could explain the syndrome of tropical fatigue. The results showed that supplements of vitamins of the B complex did not improve the health or enhance the sense of well-being. There was no evident decline in the incidence of minor illnesses in the subjects treated and vitamin-B complex and insoluble liver fraction supplements were found to have raised the serum cholinesterase level significantly.

ANTICOAGULANTS COMPARED

AN anticoagulant recently introduced into Britain, cyclocoumarol, is not more satisfactory than others previously available according to Neilson and Mollison (*British Medical Journal*, 1957, **1**, 1214). In a clinical evaluation, anticoagulant therapy in thromboembolic disease consisted of treatment of fifty-seven patients with cyclocoumarol, 125 with ethyl biscoumacetate and 179 with phenindione. It was found that a therapeutic degree of prolongation of the prothrombin time was effected more quickly with phenindione than with cyclocoumarol, that patients receiving cyclocoumarol and ethyl biscoumacetate showed greater and more frequent fluctuations in their prothrombin times during maintenance therapy than did those receiving phenindione and that the percentage incidence of haemorrhage was greatest in the cyclocoumarol series.

FATTY ACIDS IN CORONARY-ARTERY DISEASE

OBSERVATIONS made by Lovelock and others (*Lancet*, 1957, **1**, 705) do not support the hypothesis that deficiency of the "essential fatty acids" (linoleic and arachidonic) is a factor in the genesis of coronary-artery disease. Gas-liquid chromatography was used to determine the proportions of a range of fatty acids, from C₆ to C₂₀, in the blood of twelve patients with coronary-artery disease and in twelve controls matched for sex and age. The blood was divided into red cell, plasma phospholipid, and plasma acetone-soluble fractions. In the red cell and plasma phospholipid fractions there were no detectable differences between the proportions of any fatty acids in the patients and their controls. In all three fractions the mean proportions of the "essential fatty acids" were about the same in the patients and in the controls. In the acetone-soluble fraction of the plasma (containing cholesterol esters and glycerides) the ratio of oleic acid (the most abundant) to its corresponding saturated acid (stearic) was higher in the patients. The authors suggest that therefore the disease may be a consequence of some fault of metabolism rather than of diet.



6. Above: Lung of Frog, magnified, showing Capillaries. From Malpighi.

Below: Capillary network in tail of Eel. From Leeuwenhoek.

his personal appearance, there are many portraits which traditionally bear his name, but few of them can be genuine. I refer here only to two. The first is at the Royal College of Physicians (see p. 725). It is perhaps by the Dutch artist, Cornelius Janssen. If so, it must have been painted

The pharmaceutical manufacturing industry of the United States today is international in scope, its leading names and products household words in many countries. Yet before they became known overseas most of the principal American manufacturers could boast long and proud records of domestic expansion. To British pharmacists the names and the products are familiar, but little is known of the history and development of their makers. Hence this introduction to them.

SOME LEADERS OF THE AMERICAN PHARMACEUTICAL INDUSTRY



AS will be seen from a contribution elsewhere in this issue by two eminent medical historians, the American States in colonial times and in fact to a much later date relied on British "patent" medicines to an extent that will come as a revelation to many in this country. Nevertheless it is not to be supposed that the development of the United States pharmaceutical industry in modern times has paralleled that of the British industry. The rise and expansion of the American industry is a subject on which little seems to have been published on this side of the Atlantic. To make it rather less of an unknown quantity, at least to British pharmacists, is the principal purpose of the paragraphs that follow, in which brief histories are given of a number of companies which are among the largest and most important in the American drug industry.

ABBOTT LABORATORIES, INC.

THREE years after he left the University of Michigan Medical School about seventy years ago, Wallace Calvin Abbott decided that he would get more consistent response to drugs if he manufactured them himself. At that time varied results were being obtained from the administration of equal quantities of a drug even under similar circumstances to the same patient. The fluid extracts and tinctures then in use were, in fact, unstandardised and undependable.

Dr. Abbott started to make his own drugs in an annexe of his kitchen. His initial interest was simply to take care of his own patients, but it was not long before neighbouring physicians began asking for his preparations. As he filled their requests, the demand, particularly for his alkaloidal granules, grew and kept on growing. Today the Abbott Laboratories organisation extends throughout the world. Dr. Abbott's policy was strictly "ethical," selling

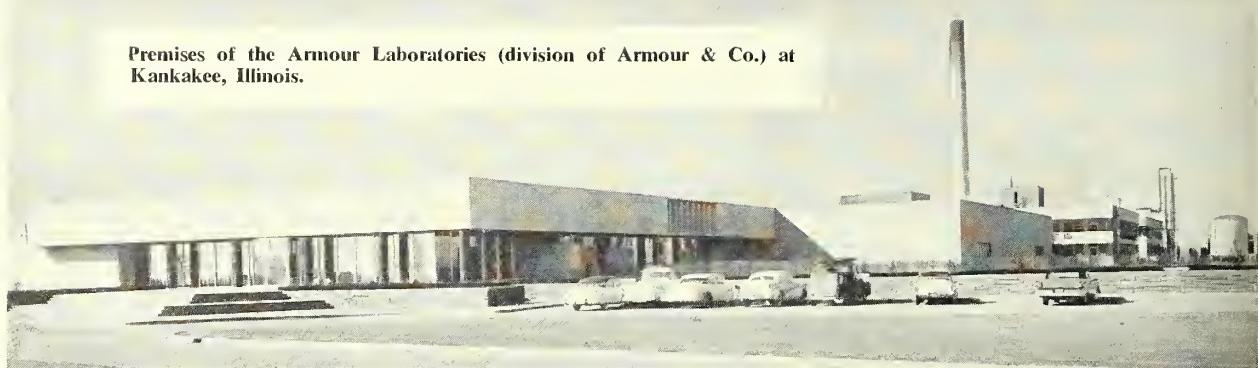
his products through medical channels, and then only after clinical trials had proved their effectiveness. When he died in 1921, Dr. Abbott had seen the company emerge from a supplier of alkaloidal granules to one of the most successful pharmaceutical concerns in existence. He had seen the company introduce an outstanding water-purifying compound and germicidal agents to be used by the soldiers in the 1914-18 war. He had seen it become the first American manufacturer to synthesise barbitone sedative hypnotic, and procaine local anaesthetic.

Since the death of the founder, the company's scientists have made many more contributions to medicine. Its specialities number over 1,000 and cover almost every phase of topical and internal medicine. One of the most recent developments is the production, in the Oak Ridge laboratories, of radioactive drugs, the processing of radioactive isotopes and their incorporation into synthetic compounds for use in brain-tumour surgery and in treating diseases of the thyroid.

THE ARMOUR LABORATORIES

A DIVISION of Armour & Co., the Armour Laboratories, Kankakee, Illinois, has been in business as a pharmaceutical house for close on a century. Its greatest triumph was the introduction of ACTH (adrenocorticotrophic hormone). The compound was produced by the Armour Laboratories after many years of research. It is marketed as Acthar and HP Acthar gel. For two or three years those products were shipped to Britain, but since new laboratories were completed at Eastbourne two-and-a-half years ago they have been like other Armour pharmaceutical specialities, wholly produced for the British market by the sixty-year-old wholly British subsidiary, Armour Laboratories (Armour & Co., Ltd.).

Premises of the Armour Laboratories (division of Armour & Co.) at Kankakee, Illinois.



ELI LILLY & CO.

THE founder of Eli Lilly & Co., Colonel Eli Lilly, a veteran of the Civil War, started his business in 1876 in an 18 ft. x 40 ft. building at 15 West Pearl Street, Indianapolis. His capital was \$1,300; his staff, three employees—including his fourteen-year-old son, J. K. Lilly.

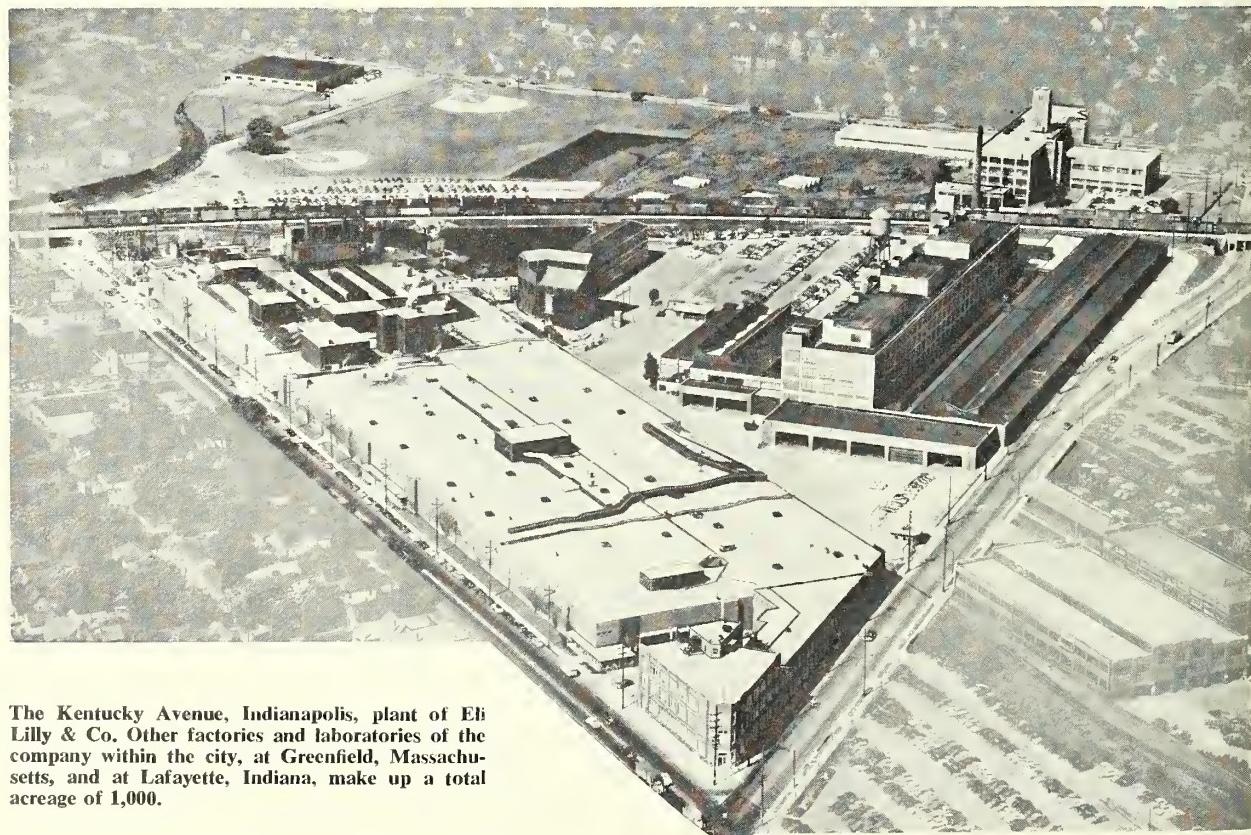
Colonel Lilly in the spacious days of 1876 paid his employees with gold coins, which he carried in his derby hat. Sales increased and with them the number of employees. By 1886 there were fifty. Today there are more than 8,000, of whom over 5,500 are at work in Indianapolis.

Plants in Many Countries

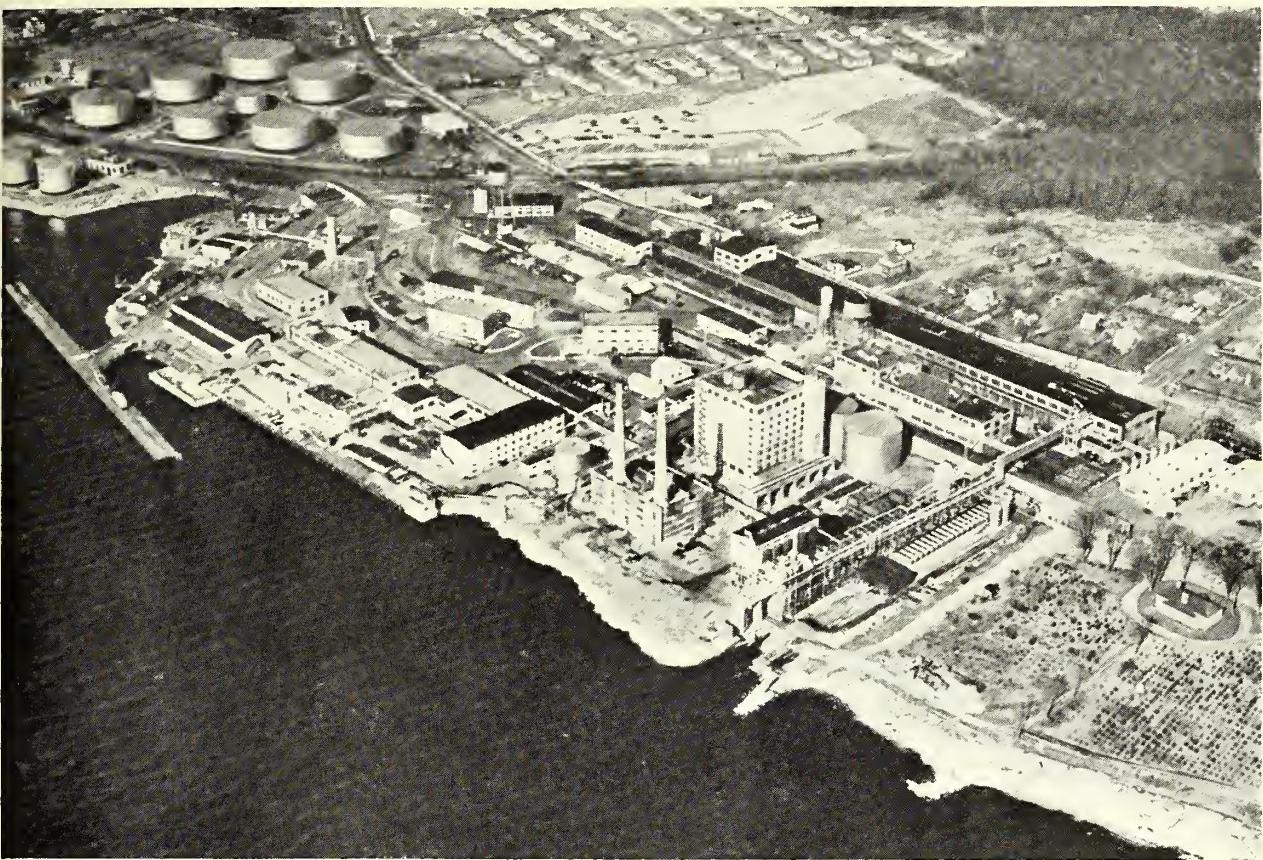
The company's physical property in Indianapolis, Greenfield, and Lafayette, Indiana, currently covers more than 1,000 acres and there are manufacturing units in Toronto, Canada; Basingstoke, England; Sao Paulo, Brazil; Mexico City, Mexico; Buenos Aires, Argentina; and office and warehouse facilities in Bombay, India. There are approxi-

mately 7,000 employees in the United States and more than 1,000 employees in fifty-one countries of the world.

The original Lilly price list contained principally fluid extracts and elixirs, but upon the return of J. K. Lilly, sen., from the Philadelphia College of Pharmacy and Science the company began to enter into research. A scientific division was established in 1886. Export activities began in 1913, and the number of the company's products now sold in 108 countries is more than 1,200. Amytal, first of a series of barbiturate sedatives and hypnotics introduced in a little over a decade, was launched in 1925. Liver extract came in 1927. Merthiolate was perfected in 1929. 1935 found the company's research department developing Ergotrate (maleate). In 1952 the organisation discovered erythromycin wide-spectrum antibiotic, today marketed as Ilotycin. In 1954 the company was one of a number chosen by the United States National Foundation for Infantile Paralysis to produce the Salk polio vaccine without profit for mass immunisation trials, and since April 12, 1955, it has produced approximately 70 per cent. of all polio vaccine released by the Government of the



The Kentucky Avenue, Indianapolis, plant of Eli Lilly & Co. Other factories and laboratories of the company within the city, at Greenfield, Massachusetts, and at Lafayette, Indiana, make up a total acreage of 1,000.



The plant of Chas. Pfizer & Co., Inc., at Groton, Connecticut.

United States. In October 1955 the company's organic chemistry division synthesised lysergic acid.

One of the world's most modern buildings for research was completed by the organisation in 1934, and several additions have since been made to it. Included in the building is a tracer laboratory in which, using radioactive materials, body dynamics are being studied. In 1954 Eli Lilly & Co. entered the agricultural field, establishing an agricultural and industrial products division. Its first major product was Stilbosol (diethylstilboestrol premix), an additive for cattle feeds. In 1956 it acquired Corn States Laboratories, Inc., a national distributor of veterinary products, and in the same year announced a \$3 million expansion programme in agricultural research. The organisation has always encouraged its personnel to participate actively in civic affairs. In 1916 its employees contributed \$25,000 to a base hospital unit which went to France, and in 1952 pledged more than \$200,000 to a drive by the Indianapolis Hospital Development Association. In the 1939-45 war the company processed 2 million pints of blood plasma on a non-profit basis for the American Red Cross and armed forces.

Employees' Welfare Schemes

In 1920 the company inaugurated a non-contributory retirement plan which a number of times subsequently has been broadened in scope. A hospital was established in 1917, and free group insurance for employees was introduced in 1927. A forty-four-hour week was adopted in 1930, a forty-hour week in 1933.

The company's founder, Colonel Eli Lilly, remained president until 1898. His son, J. K. Lilly, sen., served from 1898 to 1932 and his two sons, Eli Lilly and J. K. Lilly, jun., held the presidency 1932-48 and 1948-53 respectively. Mr. Eugene N. Beesley, the first president from outside the family, has held office since April 7, 1953.

CHAS. PFIZER & CO.

IN 1849 the brothers-in-law Charles Pfizer and Charles Erhart, arriving in America from the political unrest of Germany, acquired as partners a small plant in Brooklyn to produce santonin, then widely used as a vermifuge. The venture prospered and they were soon making other fine chemicals, so that by the turn of the century the business was an important supplier to the food-processing and pharmaceutical industries. At that time (and for the first century of its existence) the chemicals produced were sold chiefly in bulk to other manufacturers or, in time of war, to the United States Government. In 1862 the firm became the first U.S. producer of tartaric acid, and eighteen years later began producing citric acid from imported crude citrate of lime. At that period the salt was produced almost exclusively in Italy from lemon culis, but demand for citric acid by the American food and pharmaceutical industries grew rapidly, and "natural" citric acid became inadequate both in quantity and in regularity of supply. At the turn of the century the company began looking for a way of making the acid from raw materials that would be more readily available and less liable to fluctuations in supply and price. By 1923 a practical process of production had been developed: it involved the fermentation of molasses, a product cheaply available. Fermentation processes were later developed for many other organic chemicals, notably oxalic, gluconic and itaconic acids, riboflavin and vitamin C.

That background of expertise in fermentation techniques enabled the corporation to take the lead in the American commercial production of penicillin during the 1939-45 war, and later to become one of the early producers of streptomycin. It also set the stage for the discovery in 1949 of the broad-spectrum antibiotic Terramycin. Until that time Messrs. Pfizer had continued to supply their products in bulk to other manufacturers. They had become

the world's largest manufacturers of antibiotics before marketing even their first branded product, and they remain a leading supplier of fine chemicals and pharmaceuticals in bulk.

Early in 1950 a new division—Pfizer Laboratories—was established to market Terramycin. The division soon added a second product: Tetracycine (tetracycline), discovered by scientists of the company during investigations of the similarities and differences between oxytetracycline (Terramycin) and chlortetracycline (aureomycin). Since then the range of Pfizer antibiotic products has been considerably extended. A more recent major research development has been the commercial production of steroid hormones and hormone-like substances, partly by fermentation and partly by chemical synthesis. Examples are Cortril and Delta-Cortril (prednisone and prednisolone), and Viadril (hydroxydione), an endocrinologically inert synthetic hormone that is at once the first steroid anaesthetic, the drug of choice in the treatment of delirium tremens, and a medicament of high promise in psychiatry. Another recent success has been the commercial fermentation of 98 per cent. pure L-lysine, the first of the essential amino-acids to be produced by fermentation.

The company's United States headquarters, main plant and chief laboratories remain in Brooklyn. A plant for the production of antibiotics, citric acid, vitamins and caffeine is situated at Groton, Connecticut, and a later plant set up at Terre Haute, Indiana, is concerned with antibiotics as growth-promoting additives to animal feeds. At Terre Haute, too, the corporation has established a large agricultural experimental station. In Maywood, New Jersey, are modern parasitology and radioactivity laboratories. The Corporation attaches great importance to fundamental research, on which it spends more than \$8 millions a year in the United States alone, covering all branches of chemistry and chemical engineering.

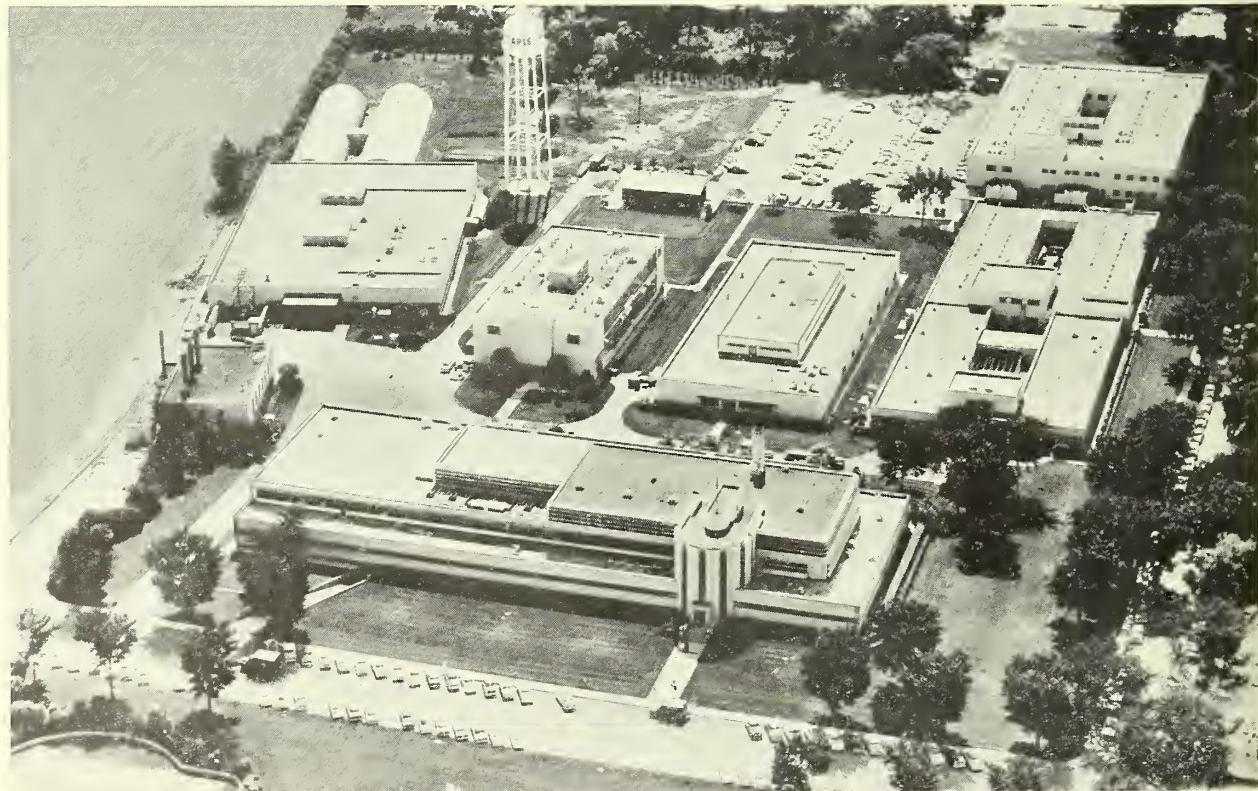
The great demand for antibiotics in the immediate post-war years, and particularly since 1950, brought Pfizer products into the international market, and the company soon

found that each country was as complex as the U.S. market itself. To solve those problems Pfizer International (still only six years old) elaborated a system of international management that may well be unique in American industry. A basic concept is that each country is best served by being treated as an individual domestic market rather than as a segment in an international export pattern. Under the Pfizer name or through close associates the corporation operates today in virtually all important countries on this side of the Iron Curtain. Its most important subsidiary—and the one that has gone farthest along the road to independence—is the British company: Pfizer, Ltd. That company, with an all-British board and staff, manufactures and processes at Sandwich and Folkestone Terramycin and other products, and supplies the sterling area and other overseas territories, making thereby a substantial contribution to Britain's export prosperity. A fundamental-research laboratory has been established in Britain which the company hopes will, in collaboration with British medical schools and universities, effect as great a scientific impact as that which the Pfizer organisation in America has made in United States pharmaceutical, veterinary and agricultural circles. Since its establishment in Britain in 1952 the company has, as a deliberate policy, "ploughed back" all distributable profits into expansion.

G. D. SEARLE & CO.

CONCENTRATION on original research, a policy observed by G. D. Searle & Co., Chicago, during most of the seventy years since its founding, has been largely responsible for the company's growth and progress. A number of significant developments make the Searle company different in several respects from others in the pharmaceutical industry.

First, of the company's entire range of ethical products—less than twenty-five—practically every one introduced within the past thirty years has been an original contri-



Buildings and grounds of the medical research and pharmaceutical manufacturing laboratories of G. D. Searle & Co., Chicago, Illinois. The two buildings at upper right of the picture are occupied by the chemical, biological and clinical research divisions.

bution to medical practice, developed in the company's research laboratories, tested by its biological research scientists and proved by its clinical research division. Next, no new Searle product has been offered to the medical profession until it has been clearly established as a superior form of treatment over any agent previously available. All are completely new chemicals, not combinations of existing drugs. Thirdly, more than a quarter of the total personnel of the company, and more than one-third of its physical plant and facilities, are devoted to research. The company's president (Mr. John G. Searle) stated, in a recent annual report of the company: "I am confident that no other member of the pharmaceutical industry spends a greater percentage of its sales dollar in new product research than we do." Two-thirds of the present volume of business is done in products which, eight years ago, were not even in existence.

Examples of the fields of therapy opened by the development of such research products are the motion sickness field (revolutionised by the introduction of Dramamine in 1949) and the anticholinergic treatment of such disorders as peptic ulcer and gastrointestinal spasticities, which received its great advance with the discovery of Banthine in 1950 and Pro-Banthine in 1952. More recent results of Searle research have been Mictine, an orally effective diuretic that represents years of complex research into oedema control; and Vallestrol, a synthetic oestrogen having a high degree of effectiveness and low incidence of undesirable side-actions.

RIKER LABORATORIES, INC.

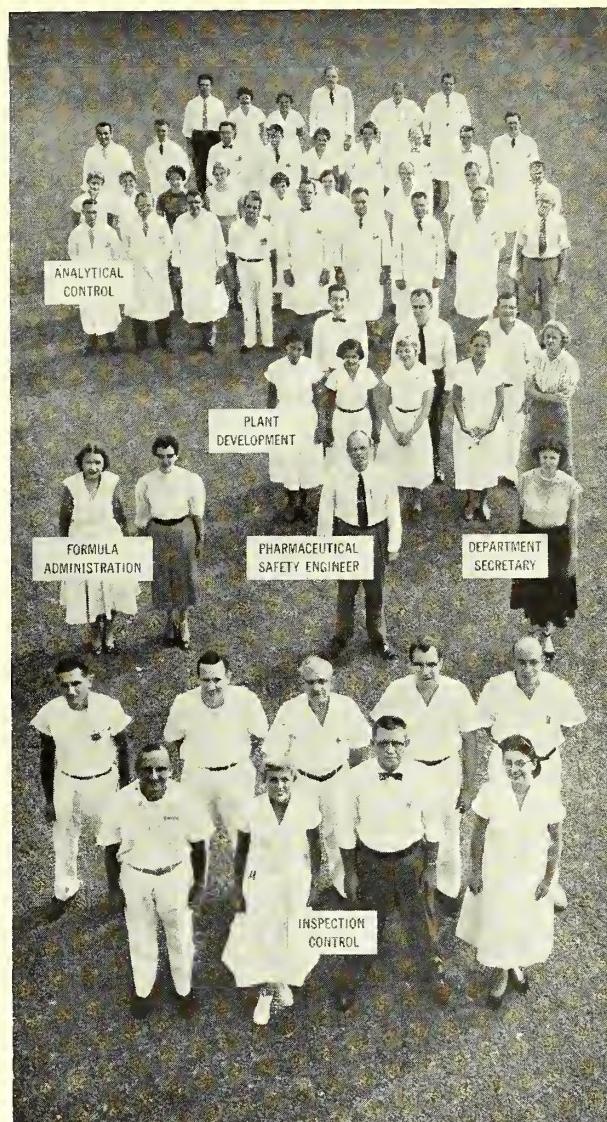
THE ethical pharmaceutical undertaking of Riker Laboratories, Inc., Los Angeles, California, was formed *de novo* by the expedient of making a considerable investment in chemical, pharmacological and medical research devoted to the discovery of drugs for the treatment of high blood pressure. The effort began early in 1948, the company being incorporated eighteen months later. Of the net sale of its products 12 per cent. is reinvested in research, which in 1957 occupied fifty-seven workers in the disciplines of organic chemistry, biochemistry, physiology, pharmacology, analytical chemistry, pharmaceutical chemistry, and clinical medicine.

The company's products include Veriloid, the first extract of *Veratrum viride* prepared and standardised on the basis of its ability to lower the blood pressure of warm-blooded animals; Rauwiloid, the first American product extracted from *Rauwolfia serpentina*; Rauwiloid + Veriloid; Rauwiloid + hexamethonium; Pentoxylon, the first rauwolfia preparation for the treatment of angina pectoris; calcium disodium Versenate, the first effective chelating agent for the relief of lead poisoning in man and animals; the Medihalers, a group of self-propelled inhalation aerosols with metering valve, believed the first aerosol for internal application of a medicine: the pack, containing 10 c.c., is possibly the smallest aerosol ever produced.

Riker companies outside the United States are located in England, South Africa, and Canada. The entire personnel of each is drawn from the country in which it is located. The overseas companies are not directly taxed to help support the research that is done by the company in the United States. They are not even forced to market what is marketed by the parent company.

SMITH, KLINE & FRENCH LABORATORIES

AT the Smith, Kline & French Laboratories, Philadelphia, Pennsylvania, one in every five persons employed in the business is engaged in research and development activities, and between six and seven cents of every sales dollar is spent on research. Of the 750,000 sq. ft. in the headquarters building in Philadelphia, 176,000 sq. ft.—more than 23 per cent.—is given over to research and development



Of the 2,600 employees of Smith, Kline and French Laboratories the fifty-four shown in the picture are specially concerned with quality. The men and women of Analytical Control test raw material, intermediate products, and the final medicament. The Plant Development team goes "trouble-shooting." Formula Administration is responsible for records. Inspection Control makes certain that weights, measures, and raw materials are as specified, packaging up to standard. The Pharmaceutical Safety Engineer is free to "double-check" any phase of manufacture.

facilities, and more laboratory space is being added. That high concentration on research has been part of the company's tradition since 1883, when its first laboratory was organised. Research activities were greatly intensified in the 1920's, when the company not only greatly increased its own research facilities, but began a policy of research in co-operation with medical schools and hospitals. In 1956 various medical centres received more than \$750,000 in research grants. They included, in the United States, the Pennsylvania, Harvard, Yale, Johns Hopkins, California, Cornell, and Chicago universities and, in Britain, Oxford, St. Andrews, Glasgow, and Leeds universities, the Harveian Society of London, the Chelsea Polytechnic School of Pharmacy, and the Royal Free Hospital.

A strict company policy lays down that no product is marketed unless it constitutes, in the judgment of the company, distinct therapeutic or pharmaceutical advance. Hence, though as many as 1,000 products may be tested annually, only two or three—possibly none—are introduced

in any year. Some SKF products have been in long use—for example, Neuro phosphates, a standard prescription in America and overseas for fifty-one years. In more recent times major advances have been made with Dexedrine and Benzedrine. The company's Spansules are tiny, variously coated pellets which dissolve over a period of time to assure uniform, continuous, sustained release of medication for as long as twelve hours. Most recently chlorpromazine has been developed as a psychopharmacological agent in moderate to severe mental states.

The organisation began as an apothecary shop in Philadelphia in 1841. By the early 1880's it was widely engaged in drug wholesaling, and in 1883 established a pharmaceutical laboratory. In 1929 the manufacturing aspects were separated from the wholesaling, and Smith, Kline & French Laboratories emerged as a manufacturing company dedicated to research.

At the end of 1936, at a time when so-called "speciality" drugs constituted only 10 per cent. of the prescriptions written in America, the company decided to discontinue the manufacture and sale of a range of proprietary drugs and to concentrate its efforts on the research, development and marketing of products advertised only to the medical profession and dispensed by chemists at the direction of the physician. After the 1939–45 war they reorganised their long-established overseas trade so that in Britain, for example, A. J. White, Ltd., the company which had for many years marketed SKF products through its subsidiary Menley & James, Ltd., was wholly acquired. In April 1957 the British organisation was renamed Smith, Kline & French Laboratories, Ltd.

In the United States the company is known for its advanced management techniques, which have led to the adoption of imaginative projects such as the promotion of colour television (which it is acknowledged was developed in Britain) in the field of post-graduate medical teaching. Since June 1949 the company's medical colour television unit has travelled throughout the United States and other countries, and demonstrations have recently been given in this country (see *C. & D.*, May 18, p. 547).

The Smith, Kline & French Foundation was organised four years ago as an independent philanthropic institution, and since then has granted nearly \$1,500,000—most of it to independent basic and pure research (none connected with product research), for mental health purposes and to assist scientific education.

THE UPJOHN COMPANY

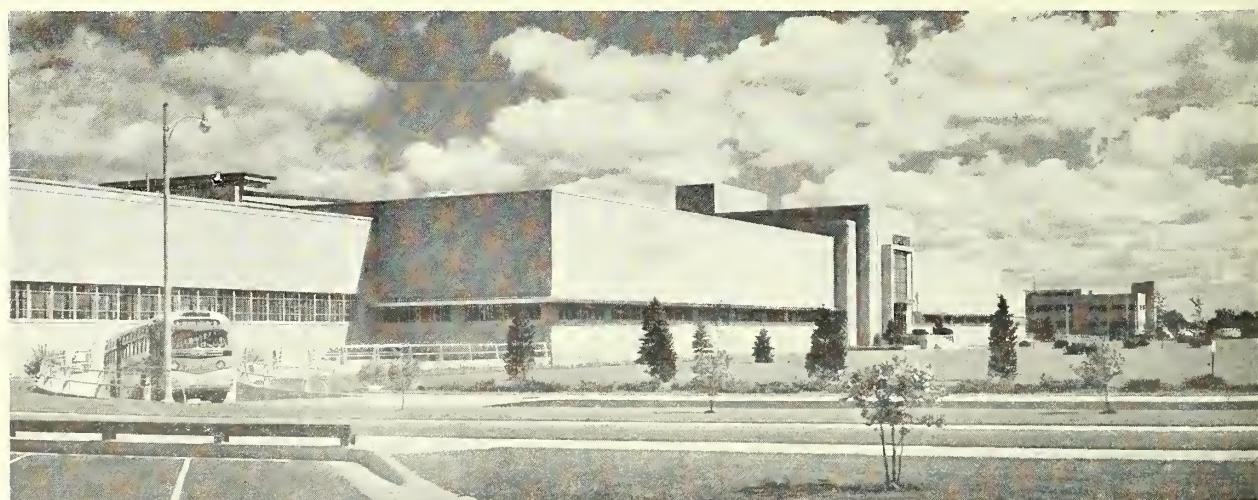
THE Upjohn Company grew from a small business founded to develop a pharmaceutical speciality: in this case a

friable pill manufactured by a patented process developed by the founder, Dr. W. E. Upjohn. The pills were advertised and sold to the medical and pharmaceutical professions under the slogan "Can be crushed to a powder under the thumb," and this statement, combined with an illustration of a pill and thumb, made up the company's first trade mark.

Dr. Upjohn's early experiments on the friable pill were carried out in Hastings, Michigan, where he was a practising physician. In 1886 he moved to Kalamazoo, where he was joined by three brothers, and a year later the business was incorporated as the Upjohn Pill and Granule Company. The company's first price list, printed in 1886, listed 186 pill formulas, the most popular being quinine and an improved blaud (iron) pills. Much of the early pill manufacturing, coating and bottling equipment was designed by the Upjohn brothers, and modifications of the original equipment are still in use. The development around the turn of the century of flattened tablets made by compression gradually replaced pills as a popular dosage form. To meet competition the Upjohn Co. enlarged its scope to take in general pharmaceuticals, including tablets, fluid extracts, tinctures, elixirs, ointments, and syrups.

By 1909 the company occupied seven buildings in downtown Kalamazoo. Rapid growth and expansion required even more buildings, and by 1945 the company occupied, at its several sites in Kalamazoo, thirty buildings, with a total floor area of 838,000 sq. ft. (nineteen acres). It became obvious that the increasing demand for pharmaceuticals would soon render even those facilities inadequate, and the management planned a new plant to be erected just south of the city of Kalamazoo. Completed in 1956, the new plant covered thirty-three acres and increased the company's production capacity by more than 50 per cent. Within it more than 700 products are manufactured, yet its facilities are so flexible that large-scale production of newly-discovered and developed drugs may be started within a matter of hours. The plant consolidates all operations under one roof. It permits a continuous line of production starting from raw chemicals brought direct into the south side of the building on a railroad spur, moving across the plant through various stages of production, and terminating as packaged pharmaceuticals ready to be shipped from a railroad spur on the north side of the building. The manufacturing area has a unique integrated ceiling lighting system. Above the ceiling 120 separate air-conditioning units are installed.

From a four-man force in 1886, the company has grown to over 4,000 employees. Of that number about 2,900 are located in Kalamazoo. The rest operate from branches in the United States and from subsidiaries in other countries;



The Upjohn Company's plant at Portage, Wisconsin. At the extreme right is the antibiotics building.

45 per cent. of the employees have been with the company for ten years or longer. Upjohn products are available in more than seventy countries through pharmacies, hospitals, and physicians. There are five subsidiary companies: Upjohn of Canada, of England, *do Brasil*, *de Mexico*, and of Australia. In most other overseas territories the company operates through exclusive agents; in a few through wholesalers.

Almost Every Type of Pharmaceutical

In the company's catalogue almost every type of pharmaceutical is represented, except vaccines and sera. The company has long been a major producer of important antibiotics. Antibiotic manufacturing facilities were established for producing penicillin during the 1939-45 war. Since then other antibiotic products are being turned out today, including Cer-o-cillin (a penicillin claimed less likely to cause allergic reactions); erythromycin; neomycin; and new antibiotic Albamycin, an Upjohn antibiotic unique in many respects, providing blood levels many times higher than are achieved by older antibiotics given by mouth. Unlike some of the older antibiotics, that antibiotic is understood to kill the bacteria against which it is active (rather than just hindering their growth). The company discovered and developed the microbiological synthesis first used in combination with chemical synthesis for the production of cortisone. In the process certain bread-type moulds are

utilised to do more efficiently in one step work that formerly required several chemical steps.

The Upjohn research division, with the medical division, comprises about a twelfth of the company's total personnel. Of the 300 scientists in the two divisions 116 hold Doctorates in Philosophy, twenty-one in medicine, and 112 in Science. The rôle of research in the development of new products is evident at the time those products are marketed. Less obvious is the research for tools to make possible the discovery and evaluation of new drugs. The "mechanical chemist," a machine designed and built by scientists of the company, has a photo-electric "brain" that evaluates how much of a searched-for hormone is contained in an unknown substance. The "ouch meter" is a modification of the standard equipment for timing the interval between stimulation of the skin and tail switch in rats to which analgesics have been applied. Photo-electric cells activate and stop the timer, thus permitting a more critical evaluation of the drugs under test. The Upjohn organisation was the first to instal a 2-million volt Van de Graaf electron accelerator for industrial use. With that equipment a stream of electrons is "shot" into drugs to kill bacteria without adversely affecting the drug.

Dr. W. E. Upjohn, the founder stressed a policy "Keep the Quality Up," by placing signs throughout the plant. That principle continues to dominate the company's activities despite the many changes that they have undergone.

THERMOMETRY IN MEDICINE

Today the clinical thermometer is taken very much for granted. But its acceptance into medical practice was achieved only after more than 300 years of pioneering and development work on the part both of physicians and instrument makers.

IN a recent film, "Doctor at Large," one of the characters, an elderly family doctor, affirms his ability to tell without the use of a clinical thermometer whether his patient has a fever or not.

Behind that remark lies a tribute to, rather than a disparagement of, the clinical thermometer. In 1868 Wunderlich wrote:

"... in the same way as one who is well versed in percussion and auscultation can dispense with their use on account of the lessons they have taught him, so the surgeon who has attained to great experience in thermometry can safely draw conclusions, in many cases of illness, without using the thermometer at all, from other diagnostic signs—conclusions which it would have been impossible to arrive at without his previous experience of temperatures."

Galileo's Thermoscope

Instruments for measuring temperature date from perhaps 1592 with the invention by Galileo Galilei of his air "thermoscope." The term thermoscope was introduced by Josephus Blanckanus in his *Sphaera mundi, seu Cosmographia demonstrativa*, written in 1617 and published at Bologna in 1620. But nearly 300 years elapsed after Galileo's thermoscope was made before the clinical thermometer became an accepted part of the equipment of the physician. Thus the *Encyclopædia Britannica*², after pointing out that the first efficient clinical in-

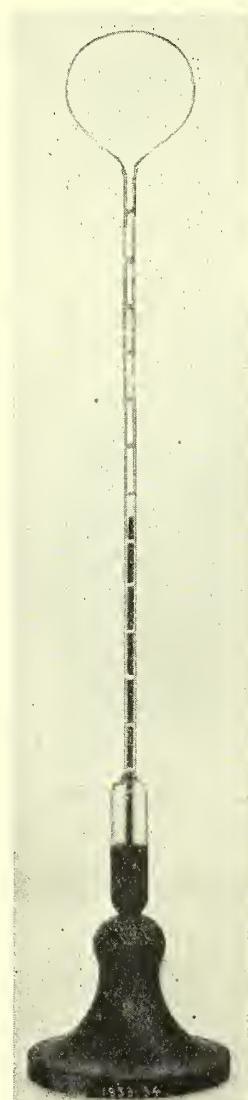
strument was the pulse watch introduced by Sir John Floyer in 1707, states that:

"... attempts were also made to introduce a thermometer into practice, but the construction of suitable instruments proved impossible. Both those ideas gained final admission to clinical practice during the nineteenth century. . . . Percussion, like the thermometer, was slow in entering practice."

The usefulness of the clinical thermometer in diagnosis was therefore recognised long before an advancing technology could produce a practicable instrument and provide a true scientific explanation of the effect of disease on temperature. Concurrently with the development of the instrument it was necessary for the most enlightened among the medical men to convince their colleagues of its usefulness.

Galileo's instrument consisted of a glass tube with a bulb blown at one end. The bulb was heated to expel some air and the end of the tube was dipped in water or other liquid which consequently rose in the tube as the trapped air cooled. Subsequent changes in the ambient temperature were indicated by the expansion or contraction of the air inside the tube. But, the reservoir of liquid being open to the atmosphere, the instrument was affected by atmospheric pressure.

Reconstruction of Sanctorius' thermoscope. Photo, Crown copyright, Science Museum, London.



It was a colleague of Galileo's, Sanctorius (1561-1636) who put the thermoscope to clinical use. It is recorded³ that being inspired by the devices of Galileo he invented a thermometer — the term "thermometer" was first used in *Les Récréations Mathématiques*, by J. Laurechon, under the pseudonym H. Van Etten, and published in 1624—and an apparatus for measuring the pulse and also a trocar and a cannula. Elsewhere it is stated⁴ that the first to apply the principles of the mathematical rules based on measurement to medical matters was Sanctorius. He described a thermometer—though an extremely defective one—for comparing the temperatures of different persons and an apparatus for comparing pulse rates. The upper part of the Sanctorius thermometer was similar to that of Galileo but it carried its own glass reservoir at the lower end. The reservoir was a cylindrical glass vessel that surrounded approximately one-sixth of the length of the glass tube. There was a small hole in the wall of the glass reservoir near the top where it was sealed to the long glass tube. That hole admitted air.

Sanctorius' method of using such a thermometer was quite different from that of modern physicians⁵, for he observed the distance through which the indicating liquid moved down the tube during ten beats of a small pendulum, whilst the bulb was surrounded by the hand of the patient or placed in his mouth.

Florentine Thermometers

The hermetically-sealed thermometer was first brought into general use by the Grand Duke Ferdinand II of Tuscany, and he is said to have possessed such instruments as early as 1654⁶. They were much employed by the members of the *Accademia del Cimento* founded under his protection at Florence, and were long known as Florentine thermometers. Alcohol was the liquid first employed, and the degrees, intended to represent thousandths of the volume of the bulb, were marked with small beads of enamel fused on the stem. That system, which had obvious practical disadvantages, was later replaced by one in which two fixed points were taken and the interval between them divided into the same number of degrees. It was natural, in the first instance, to take the temperature of the human body as one of the fixed points.

In 1701 Sir Isaac Newton proposed a scale in which the freezing point of water was taken as zero and the temperature of the body as 12°. About the same date (1714) Gabriel Daniel Fahrenheit, who was the first to substitute mercury for alcohol in the thermometer, proposed to take as zero the lowest temperature obtainable with a freezing mixture of ice and salt, and to divide the interval between that temperature and that of the human body into 12°. To obtain finer graduations the number was subsequently increased to 96°. The freezing point and boiling point on one of his thermometers, graduated as already explained, with the temperature of the body as 96°, came out in the neighbourhood of 32° and 212°, respectively, giving an interval of 180° between those two particular points. It is noted⁷ that his thermometer must perhaps have had a nearly uniform bore for him to have observed 212° as the boiling point of water, but could not have been precisely uniform, since the blood temperature of a healthy man was observed as 96°, and is now known to be 2-3° higher.

Mercury-in-glass sheathed thermometers were made by Fahrenheit in Amsterdam and by other Dutch workers for clinical and other use. Martine noted⁸ in 1740 that "now they are made nowhere in greater perfection or with greater

exactness than by our countryman Wilson in London." Fahrenheit was also responsible for introducing the more sensitive cylindrical bulb thermometer.

One of the difficulties of using a clinical thermometer was the need to read it *in situ*. An advance came with the description by Professor J. Phillips of Oxford in 1832⁹ of an instrument with self-registering maximum.

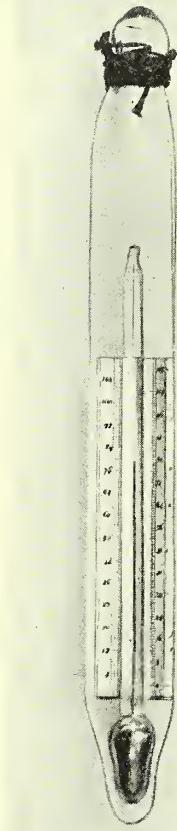
"The small residual air-speck which is supposed to be, without any exception, left in every mercurial thermometer, is employed, in Mr. Phillips' construction, to separate a small portion of the column, and thus to permit that portion to be acted on exactly in the same manner as the iron, or other cylinder, above the mercury of the common instrument."

A handicap of the Phillips' index was that the air-speck was sometimes lost, and with it the mercury index above it. Later modifications obviated that difficulty to some extent. But a major improvement came with the invention—attributed to Negretti & Zambra—about 1851, of a maximum reading thermometer which depended upon the bore below the calibrated part of the stem being almost completely closed during manufacture, so that as the temperature fell the mercury thread broke at the constriction, leaving all that had remained above to be observed at leisure. That is the device that is used in clinical thermometers today.

Of the medical men responsible for introducing the thermometer into clinical practice three are outstanding. They were in Germany C. A. Wunderlich and in Britain William Aitken and Sir Clifford Allbutt. Dr. Aitken's main effort to popularise the instrument in the medical profession was concentrated in a textbook published in 1866¹⁰. In the book he gave particulars of a set of two thermometers that he arranged "with the aid of Mr. Casella, the accurate and careful instrument maker at 23 Hatton Garden, London" in a convenient wooden case. Each box contained "an ordinary, but very sensitive thermometer . . . made with a curve, in order that its bulb may be the more easily and perfectly fitted into the axilla, while the stem being carried upwards renders the reading *in situ* more easy." The other instrument was a straight thermometer which, "being a maximum self-registering one (known as 'Phillips' maximum'), does not require to be read *in situ*."

Aitken noted in his textbook that long before Wunderlich brought the subject of medical thermometry so forcibly to the notice of the medical men, Dr. John Davy [1790-1868] testified to the usefulness of the thermometer in detecting latent disease not otherwise indicated by other symptoms but it was, continued Aitken, mainly to Wunderlich that doctors were indebted for an elaborate exposition and persevering advocacy of the usefulness of daily records of the temperature of fever patients, and the constant employment of the thermometer as a means of diagnosis at the bedside.

Aitken suggested exhibiting on paper "the daily thermometric changes, in the form of an angular line or a curve and to note, in the proper place, short memoranda of the more important incidents or therapeutic events which have taken place during the progress of the disease." Aitken noted that in 1754 de Haen, the first teacher of clinical medicine in the hospital of Vienna, had impressed upon his pupils the importance of attending to the temperature of the body in a disease. Ever since the days of Hippocrates the physician and the surgeon had been in the habit of applying the hand to the skin of the patient, to



A mercury-in-glass sheathed clinical thermometer made by Alex. Wilson, London, c. 1740. Such instruments were made by Fahrenheit and other Dutch workers. The thermometer stem is 3½ in. long and is hermetically sealed inside a cylindrical glass tube measuring 5½ by ½ in. There is a paper scale between the thermometer and the glass envelope divided by unit intervals from 0° to 112° F.

appreciate the presence of abnormal heat; but the practical application of the thermometer in place of the hand, while it was obviously a more accurate method, had never come into general use, mainly on account of the difficulty of getting instruments sufficiently sensitive and trustworthy. Now, continued Aitken, the instruments required "may be obtained so delicate and accurate, and the time they take to apply them is so insignificant, that the student of medicine and the physician have no excuse for neglecting to use them."

It is interesting that Aitken described a "thermo electric apparatus" employed by Messrs. Becquerel and Breschet to determine the temperature of internal parts. His conclusion was that "notwithstanding the greater delicacy of the thermo-electric apparatus, a sensitive mercurial thermometer, finely graduated, is the only instrument of practical usefulness, as yet, for ordinary clinical purposes." In 1954 details were published¹¹ of a thermo-electric clinical thermometer that was produced in the United States for use in hospitals.

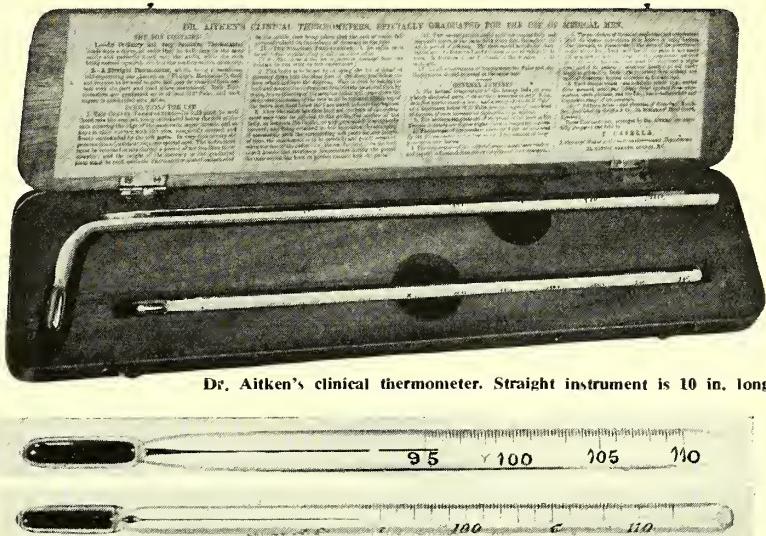
Wunderlich with his "On the Temperature in Diseases"¹ greatly influenced the rapid acceptance of the clinical thermometer into practice. In that work he listed seventeen reasons why a knowledge of the course of the temperature in disease was highly important to the medical practitioner. After mentioning the work of Sanctorius in clinical thermometry at the beginning of the seventeenth century, he points out that another century passed before the measurement of temperature was again revived—"with improved and practically perfect instruments." He records that in England, about 1740, Ch. Martin published the first accurate observations on temperature in healthy men and animals and towards the end of the eighteenth century, for the first time since de Haen, James Currie [1756–1805] made available temperature observations for medical purposes. Thermometry, said Wunderlich, pervaded the whole of Currie's practice. He tested the action of warm and cold baths, of digitalis, opium, alcohol, and restricted diet, by the alterations of temperature they produced. Currie's work, however, Wunderlich concludes, influenced his contemporaries and countrymen but little. "Its influence in Germany was still slighter." Wunderlich continues in a happier vein, however:

"About the year 1840 there commenced in good earnest a series of not-again-interrupted painstaking investigations on the temperature of the body both in health and disease. . . . In England, John Simon at first, and Sidney Ringer in particular and Aitken have all declared most strongly the practical value of thermometry. . . . The number of sceptics is much diminished of late years for there are a great many places where the general introduction of the thermometer into private practice has been already accomplished by energetic . . . practitioners. That the cost of instruments is by no means excessive, and that the use of them offers no insuperable difficulties, is now generally admitted."

Smaller Instrument an Immediate Success

The size of the Aitken thermometer (about 10 in. long) was an obvious disadvantage and the shorter form devised by Sir Clifford Allbutt a few years prior to 1870 in conjunction with Harvey & Reynolds, Leeds (predecessors of Reynolds & Branson, Ltd.) was immediately successful when it was marketed. It was of the self-registering type, employing the Phillips' index. Writing of his invention¹² he said:

"A few years ago, when convinced of the vast improvement, both direct and indirect, which would follow the general use of the thermometer, I began to think how the labour of carrying Aitken's instrument from place to place might be lessened. I applied to Casella, but he had no pocket thermometers, and seemed indisposed to make any. I therefore set to work with Messrs. Harvey & Reynolds to manufacture one; and it was



ABOVE, An early clinical thermometer made by L. Casella. The bore of the tube is enlarged a little above the bulb so that when the index column of mercury descends to that part of the tube it becomes more globular and tends to keep that shape, thus preventing it from moving nearer the bulb, and the air bubble escaping. The thermometer scale extends from 95° to 110° F. BELOW, Early clinical thermometer made by Harvey & Reynolds. Similar to those in use at the present time, being just over 4 in. long. The instrument has a Phillips index.

not so easy as it may seem to devise an accurate thermometer of a new form, and with a safe and portable case. . . .

The instrument was made in numbers by Messrs. Harvey & Reynolds, and the sale, at first slow, has during the last three years increased rapidly. I am glad to see the same instrument is now being made and sold by Hawksley and others, so that I have reason to believe the thermometer is now in the hands of most medical men as a daily companion. It is a matter for much regret that these instruments are all made on the Fahrenheit scale. . . . I urged Mr. Reynolds to make his thermometers in the centigrade scale . . . but it stopped the sale promptly."

That the clinical thermometer is today as much a part of the well-equipped family medicine chest as of the doctor's bag is a tribute to the work not only of the early protagonists of the value of the instrument but also of the makers in producing, so cheaply, an instrument of high precision. As was remarked in an article in *THE CHEMIST AND DRUGGIST* two months ago (*C. & D.*, April 27, p. 467), describing the business of Mr. G. H. P. Thomas, M.P.S., how seldom does one see so essential a sickroom adjunct as the clinical thermometer brought to the notice of customers. The statement in the same article, that a display of clinical thermometers in a medicine tumbler [as an act of salesmanship] must be rated simple and legitimate even by the most professionally-minded member of the Pharmaceutical Society, is a suitable one on which to end.

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The case of Aitken thermometers illustrated on this page was kindly lent by G. H. Zeal, Ltd. The other photographs on the page are by the Science Museum, London. Acknowledgments are also made of help in compiling this article received from G. H. Zeal, Ltd., and the librarian, Wellcome Historical Medical Library.

VITAMIN D₃

ITS HISTORY, MANUFACTURE AND USES

S. PICKHOLZ, PH.D. (PEBOC, LTD.)

MORE than fifty years ago the late Sir F. G. Hopkins expressed in a lecture entitled "The Analyst and the Medical Man" the then remarkably advanced opinion that "in diseases such as rickets and particularly scurvy, we have had for long years knowledge of a dietetic factor, but though we know how to benefit these conditions empirically, the real errors in the diet as to this day [November 7, 1906] are quite obscure." Enlarging on his earlier paper Hopkins presented in 1912 convincing evidence of the necessity of "accessory food factors" in the maintenance, not only of health but of life itself. At the same time C. Funk voiced the opinion that beriberi, scurvy, pellagra and rickets were caused by the absence of certain substances from the diet, to which he gave the readily and universally adopted name "vitamin(e)s."

The story of the vitamins, their identification (about seventeen are known at present and eight appear to be essential for man) and isolation in pure form, followed in many cases by their synthesis in the laboratory and large-scale production commercially, represent a magnificent achievement by the combined efforts of the chemist, the nutritional physiologist and the medical man.

Vitamins Defined

Vitamins may be defined as organic compounds which are of no nutritional value but nevertheless, and usually in very small amounts, are indispensable for normal growth and health in man and animal. They have to be supplied from external sources, as additives to the ordinary diet or in the form of medicated preparations, because the body is incapable of synthesising them, although in certain cases partial synthesis can be achieved. Vitamins, most likely, participate in enzyme systems responsible for energy transformations and metabolism in a living body.

Vitamin D is the antirachitic vitamin; it is paramount in the calcium metabolism and controls the deposition of this element in the growing bone. Deficiency during infancy and childhood leads to malformation of the bones, a disease well known as rickets, and in adults may cause osteomalacia. Symptoms of the disease were recorded as early as 1645 by Whistler and for many years it was considered incurable, although the use of cod-liver oil was recommended as far back as 1782 and still more strongly advocated in 1854 by the French physician Trousseau as the "perfect cure for rachety." In 1890 Palm suggested lack of sunlight as a possible cause of rickets and that hypothesis was confirmed in 1919 by Huldschinsky, who was able to cure children suffering from the disease by exposing them to ultraviolet light. Consequently Hess and Steenbock (1924) noted that irradiation of foodstuffs with ultraviolet light produced antirachitic properties. Subsequently the fats were studied and found to contain a so-called "unsaponifiable" material, chemically classified as a sterol. If irradiated it could be endowed with high antirachitic properties and later on about half-a-dozen sterols with a similar property were found, which are in general called provitamins and are very closely related in their chemical constitution. That development finally culminated in the first vitamin D ever synthetically prepared (Windaus and co-workers, 1931-32) from the irradiation products of ergosterol in crystalline form. It has become, under the name calciferol (viosterol, ergocalciferol, vitamin D₂) a product of great importance. Ergosterol itself is also known as provitamin D₂.

It was, however, soon discovered (Massengale, Steenbock) that whereas vitamin D₂ is highly potent for human beings and mammals in general, it is much less so when tested on

birds. Cod-liver or other fish-liver oils, on the contrary, have the same potency, whether tested on mammals or birds. The conclusion, from those observations, that the active principle contained in cod-liver oil must be different from that previously obtained from ergosterol, was proved by Windaus and his collaborators in a series of brilliant researches in 1935-36, when they converted another sterol, 7-dehydrocholesterol (=provitamin D₃) again by irradiation with ultraviolet light, into vitamin D₃ (=activated 7-dehydrocholesterol of commerce, cholecalciferol). It was equally active in mammals and in birds, like the active principle in cod-liver oil. It was isolated in 1936-37 in crystalline state by Brockman and Busse from tuna- and halibut-liver oils respectively, after overcoming extreme difficulties. They thus confirmed that vitamin D₃ was the principal natural vitamin D. From the point of view of humans there is also some justification for calling vitamin D₃ "natural" vitamin D, since its forerunner, provitamin D₃, is also found in the skin, where it is converted into vitamin D₃ by sunlight.

The present-day position is that both vitamins D₂ and D₃ have been in production on a commercial scale for some time. They are equally active in human and mammalian rickets, but in birds, especially for the purpose of poultry raising, vitamin D₂ is practically without effect. It has become a matter of great importance to provide the farmer and poultry breeder with vitamin D₃ and the use of that vitamin has consequently steadily expanded during the past decade from the experimental stage to the principal field of its application. Not without justice vitamin D₃ is frequently referred to as the "chicken vitamin."

Manufacture

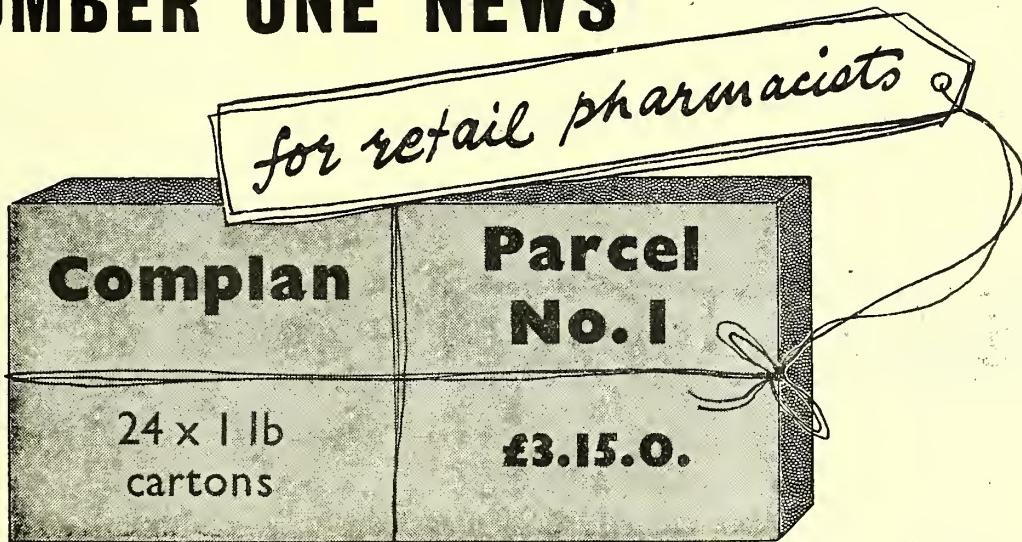
To meet the rising demands for vitamin D₃ successful efforts have been made by the chemical industry to prepare it by chemical (semi-synthetic) methods.

The process starts with cholesterol (see chart at Ia), the principal sterol of larger animals (or vertebrates) and an important component of woolwax. Following the original method of Windaus *et al.* (British Patents 454269, 491653) cholesterol acetate (Ib) is oxidised with chromic oxide to give 7-oxycholesteryl acetate, followed by a reduction of the 7-keto-group with aluminium isopropoxide (or LiAlH₄) to 7-hydroxy-cholesterol (II). Dibenzoylation to 3,7-cholesteryl dibenzoate and thermal cleaving or refluxing with dimethyl-aniline yields 7-dehydrocholesteryl benzoate, which is saponified with alcoholic potash to give 7-dehydrocholesterol (provitamin D₃) (III).

Ingenious as that process was, search for improved procedures continued and resulted in a simpler process, which is based on a selective (Ziegler's allylic) bromination of (Ib) with an active halogen compound (e.g., N-bromo-succinimide) to give 7-bromocholesteryl acetate (IV). Dehydrobromination and saponification as before lead again to (III). The latter method yields 30-40 per cent. of 7-dehydrocholesterol (British Patents 656115, 667965, 707990) as against 8-12 per cent. from the improved Windaus procedure. When provitamin D₃ is exposed to ultraviolet light of suitable wavelength the transformation into vitamin D₃ begins at once. The photochemical reactions are very complex and proceed in overlapping steps with the formation of a series of products of which vitamin D₃ is not the last. The sequence of all the foregoing operations is summarised in the chart on p. 741.

In commercial practice a solution of the vitamin D₃ in a solvent (alcohol, benzol, ether) is irradiated until a certain percentage (usually not over 50 per cent.) of the 7-dehydro-

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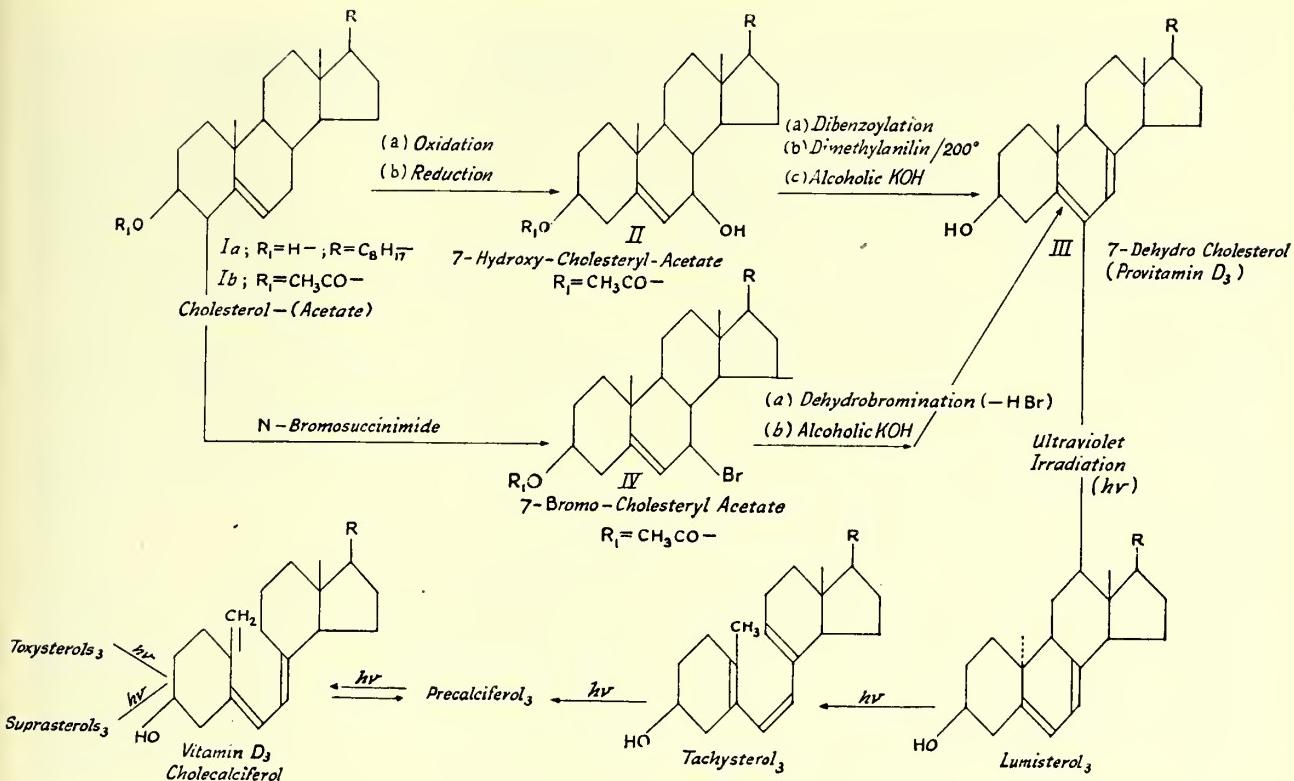
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cholesterol is transformed. Unchanged provitamin is recovered by evaporating the solvent, taking up the residual resin in alcohol and cooling. After removing by filtration the crystallised unchanged provitamin D₃ the alcohol is distilled off under vacuum. The remaining almost glassy vitamin tar is either, without further purification, dissolved in a vegetable oil (groundnut, maize, etc.) and represents the normal vitamin D₃ high-potency oil concentrate; or it is converted to crystalline vitamin D₃ via the 3,5-dinitrobenzoate or the formation of other suitable esters. In view of the high sensitivity of vitamin D₃ to air it is usual to exclude oxygen during irradiation and subsequent operations.

Similar methods have also been developed by Windaus and others for the preparation of further pro-vitamins and vitamins, which differ only in the composition of their side-chain (R in the chart = C₈H₁₇ stands for cholesterol and vitamin D₃, C₉H₁₉ for ergosterol and vitamin D₂, C₉H₁₉ for dihydroergosterol and vitamin D₄, and so on).

The corresponding vitamins D are, in general, less potent and so far have not found practical application but they serve as examples that the animal body is very sensitive to structural differences in the vitamin D molecules. It is, however, impossible to discuss in this brief review the chemistry of the vitamins D in greater detail.

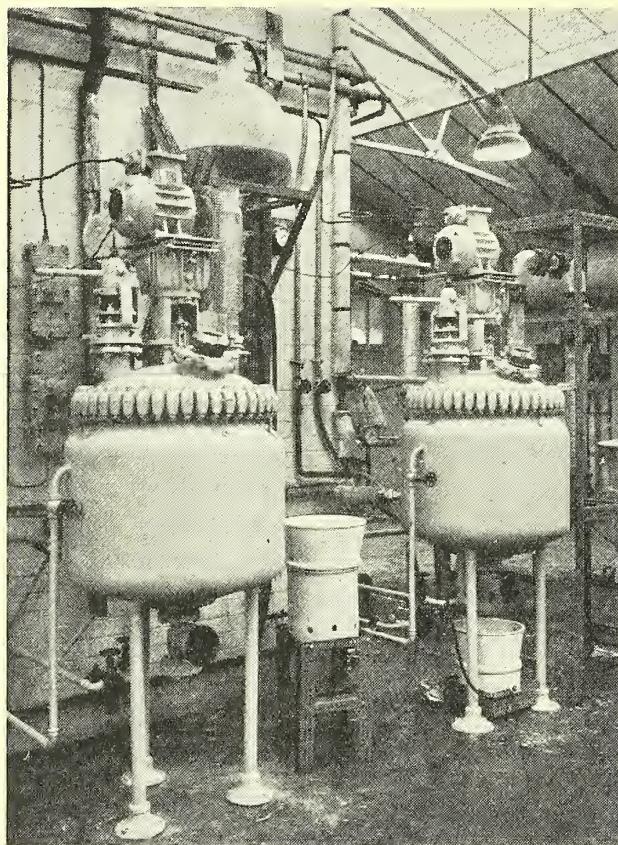
The development of a reliable standard and test method for the evaluation of the potency of a vitamin is of paramount importance. Many efforts have been made and great care has been taken in creating the proper conditions, and it is a further indication of the importance of vitamin D₃ that it has been accepted for the standardisation of vitamin D, thus replacing the previously used international standard of irradiated ergosterol. The main trouble with the old standard was that it referred to a mixture of products and not a single chemically well defined substance. In 1949 the General Assembly of the World Health Organisation adopted a preparation of crystalline vitamin D₃ (held at the National Institute for Medical Research, London) as the new international standard and recommended that the new international unit should be the antirachitic activity of 0.025 microgm. of pure crystalline vitamin D₃ which had the following physical properties:—M.pt. 87–89° C. (Corr.)

$[\alpha]_D^{20} = +110^\circ$ (ethanol); E_1^1 cm. (at 265 m μ) = 490 (ethanol), corresponding to a molecular extinction coefficient of 18,800.

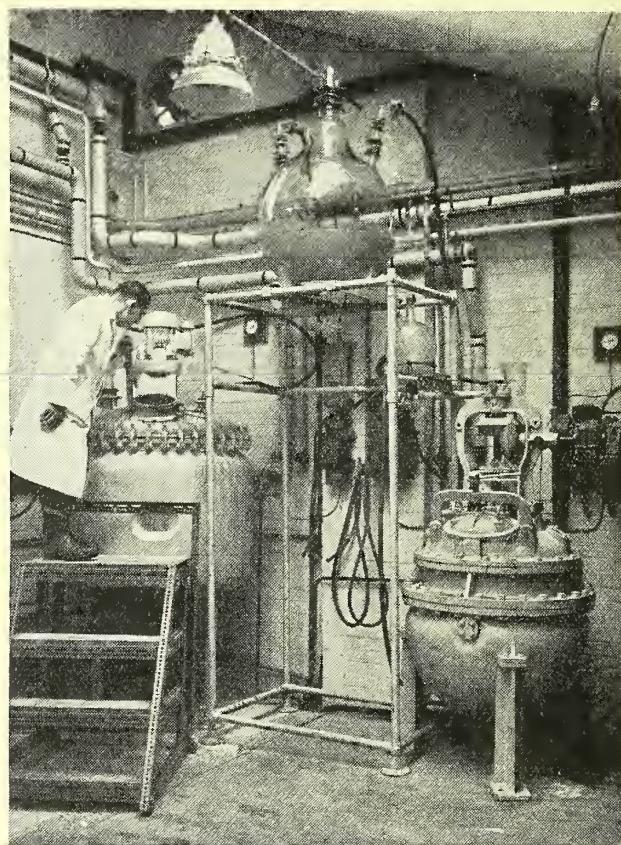
The potency of vitamin D₃ preparations can be relatively quickly ascertained by physicochemical methods, such as ultraviolet absorption measurements or specific colour tests, provided the vitamin is present in a reasonably pure form, as is the case in vitamin D₃ oil concentrates or powders for premix. Vitamin D₃, however, is the only vitamin of major importance which may still require biological tests if the material to be analysed contains even a very low percentage of other products (e.g., vitamin A) which can interfere with the assays using physical or chemical methods. That, of course, is due to the fact that the vitamin D₃ is so powerful that it is present in the usual medical or agricultural preparations only in very minute quantities.

The biological tests are carried out on rats (or on chicks) if it is desired to differentiate between vitamin D₂ and D₃. Rats of about four weeks old are fed for three to four weeks on a vitamin D-free diet, until they develop rickets. They are then divided into a number of groups, which are fed with a diet containing varying amounts of the unknown material and known quantities of the standardised vitamin preparation respectively. After ten days the bone formation is checked. In the *curative* method calcification of rachitic bones is judged by x-ray examination or by staining sections of bones with silver nitrate (line test). In the *preventive* method calcification of the bones is judged from the weight of the ash obtained by igniting the thigh bones. By comparison of the various groups it is possible to determine the vitamin potency of the unknown preparation.

The growing use of vitamin D₃ not only for medical purposes but by the farming community and poultry breeders in particular presents a great nutritional advance and is an encouragement to the farmer who strives for higher efficiency and production with lower costs. The development has been helped by the manufacturer in providing the consumer with a product uniform in quality and potency and a lower-priced article (from approximately £2,500 per kilo to less than a tenth of that figure).



Plant used in the manufacture of 7-dehydrocholesterol (provitamin D₃) the product which, on suitable irradiation, yields vitamin D₃.



Equipment for the preparation of muscle relaxing agents and other pharmaceuticals.

A TAILOR-MADE FACTORY FOR VITAMIN D₃

Increased production brings lower costs

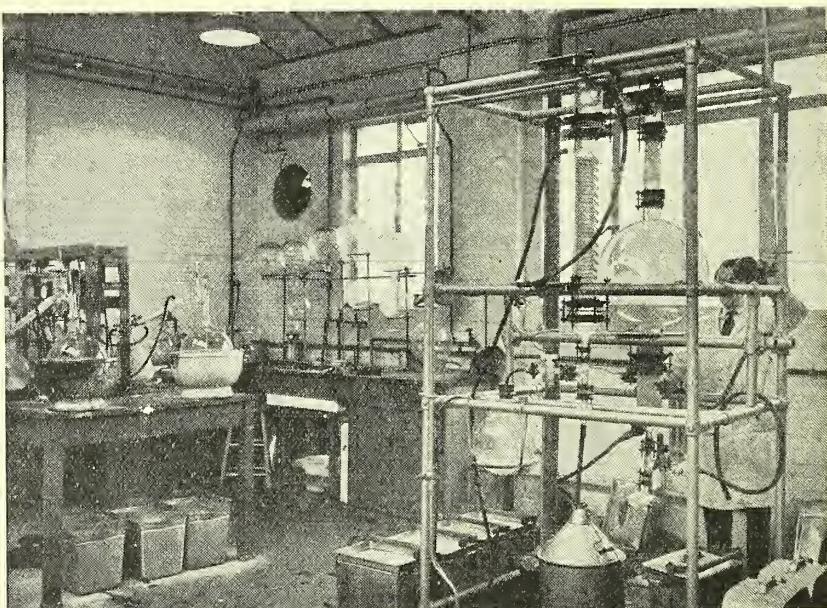
FACED with a continually increasing demand for vitamin D₃ from home and overseas customers, Peboc, Ltd., who for years have been manufacturing that vitamin on a "laboratory" scale, decided to turn over to large-scale production. The changeover necessitated planning and building a new factory, which was recently completed at Northolt, Middlesex. The installation of larger plant has substantially reduced the selling price of the final products.

Elaborate Fire Precautions

In designing and equipping the factory special emphasis was laid on safety precautions because highly inflammable solvents are used in the production of vitamin D₃. Apart from all electrical equipment being flame-proof, some of the precautions taken were: a powerful ventilation and air-conditioning plant installed throughout the factory so as to prevent the accumulation of explosive gas mixtures. The "creeping" of heavier-than-air inflammable gases is prevented by the floors in some rooms having been laid at lower level than those of adjoining rooms. Danger areas are separated from other parts of the factory by ventilated lobbies; in addition, the irradiation laboratory is fitted with an alarm system and a fully-automatic fire extinguishing equipment.

The Northolt factory has been so designed that considerable expansion can be carried out at a later date without interfering to any extent with current production.

Peboc, Ltd., was formed in 1947 to take over the production of vitamin D₃ from the Premier Yeast Co., Ltd., Greenford, Middlesex. In 1956 Messrs. Peboc became a fully-owned subsidi-



Laboratory for the manufacture of fine chemicals.

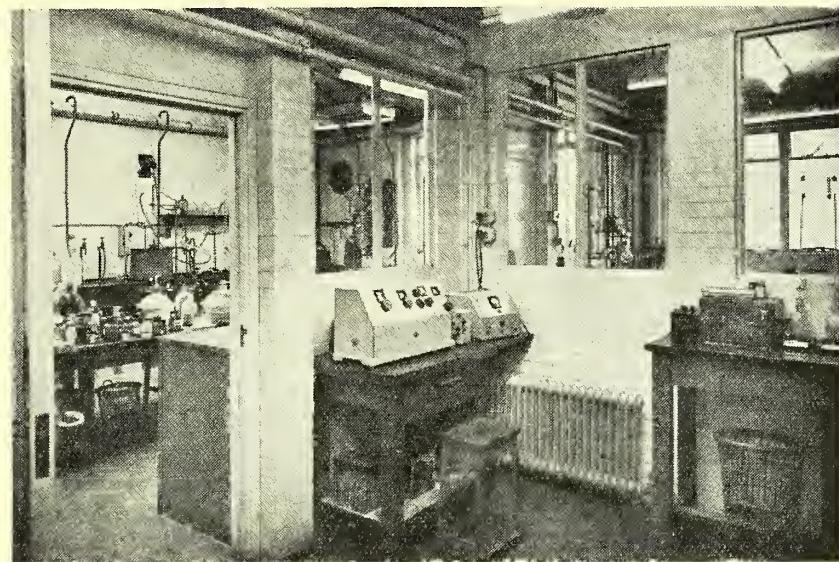
ary of C. T. Bowring & Co. (Fish Oils), Ltd., Liverpool, which in turn is part of the Bowring group of companies, with headquarters at Leadenhall Street, London, E.C.3.

Expanding Range of Pharmaceuticals

In addition to vitamin D₃ in various forms the company manufacture on a steadily expanding scale a variety of products, ranging from pharmaceutical chemicals, used in the medical field as muscle-relaxing agents and analgesics, to synthetic organic fine chemicals made to the specifications and requirements of customers. A substantial part of the production is sold in overseas countries.

Sales of vitamin D₃ are handled from the company's sales office in Liverpool, while fine chemicals are sold from the registered address at Northolt.

Part of the analytical and development laboratories. Spectrophotometer for measuring the potency of vitamin D can be seen in the centre.



TRADE REPORT

The prices given are those obtained by importers or manufacturers for bulk quantities or original packages. Various charges have to be added whereby values are in many instances augmented before wholesale dealers receive the goods into stock. Crude drugs and essential oils

quoted at 1s. 4d. per lb. in 10-carboy lots. 1-2 carboys, 1s. 8d. per lb. B.P. 1914 is quoted from 1s. 2d. to 1s. 6d. per lb. HYPOPHOSPHOROUS, B.P.C., in winchesters is from 7s. 5d. to 8s. 6d. per lb., as to quantity.

POTASSIUM PERMANGANATE.—Current rate for B.P. material for 1-cwt. lots is 1s. 10d. per lb. Technical is 197s. 6d. per cwt. and £186 10s. per ton.

POTASSIUM QUADROXALATE.—One-cwt. lots are 3s. 6d. per lb.

POTASSIUM SULPHATE.—One-cwt. lots are from 1s. 2d. to 1s. 3d. per lb.

POTASSIUM THIOCYANATE.—One-cwt. lots are 5s. 6d. per lb.

ZINC OXIDE.—Lower. Rates for B.P. quality are now: 2-ton lots £107 per ton; 1-ton, £108; 5-cwt., £110; and under 5-cwt., £117.

Crude Drugs

ACONITE.—Spot supplies of Spanish *napellus* are 3s. 3d. per lb., duty paid.

BUCHU.—Spot rounds are from 7s. per lb., shipment, 6s. 9d. c.i.f.

CASCARA SAGRADA.—Spot 1956 processed peel is 325s. per cwt., duty paid; for prompt shipment, 285s., c.i.f. New-crop, July-August, 250s., c.i.f., quoted.

CASSIA BARK.—Whole on the spot is now quoted at 130s. per cwt., in bond, and broken, 110s. in bond. For shipment broken No. 1 is quoted at 128s. 6d., c.i.f., and whole at 135s., c.i.f.

GUM ACACIA.—Kordofan cleaned sorts are 145s. per cwt. on the spot; afloat, 129s., c.i.f.

PEPPER.—White Sarawak is lower at 2s. 4½d. per lb. on the spot, with July shipment at 2s. 3d., c.i.f. Black Sarawak, spot, 1s. 9½d. per lb., July shipment, 1s. 7½d., c.i.f. Black Malabar unchanged at 210s. per cwt. on the spot; prompt shipment, 205s., c.i.f.

SASSAFRAS.—Selected bark is 5s. per lb.

SEEDS (per cwt.).—ANISE.—Cyprian,

170s.; Bulgarian, 145s., duty paid. CARAWAY.—Dutch, 115s., duty paid. CELERY.—

Indian, 180s., spot. CORIANDER.—Spot,

Moroccan, 95s.; Rumanian, 60s.; Polish or Bulgarian, 57s. 6d., duty paid. Moroccan new-crop for shipment July-August

sold at 61s., c.i.f. CUMIN.—Spot, Cyprian,

180s.; Iranian, 175s., duty paid. DILL.—Indian, 65s., spot. FENNEL.—Indian, 125s., spot. FENUGREEK.—Indian, spot, 67s. 6d.; Moroccan, 65s., duty paid. MUSTARD.—English, 62s. 6d. to 75s. according to quality.

SLIPPERY ELM.—Grinding quality bark is 2s. 6d. per lb.

STRAMONIUM.—Indian LEAVES are 70s. per cwt., and European 80s. on the spot.

TURMERIC.—Madras finger on the spot is 70s. per cwt. with new-crop, June-July shipment 50s., c.i.f., paid.

WAXES.—(Per cwt.) BEES'.—Dar-es-Salaam, spot, 550s., shipment, 535s., c.i.f.; Sudanese, 550s., duty paid and 505s., c.i.f. Abyssinian, spot, 520s., in bond; June shipment, 510s., c.i.f. CANDELILLA.—Spot is 530s. CARNAUBA.—Fatty grey, spot, 557s. 6d. per cwt.; for shipment, 540s., c.i.f. PRIME yellow, spot, 1,130s.; shipment, 1,085s., c.i.f.

Essential and Expressed Oils

ANISE.—Chinese, 11s. 9d. per lb., spot. BAY.—West Indian is 12s. 6d. per lb. on the spot.

BERGAMOT.—Spot supplies are from 73s. per lb.

BIRCH TAR.—Rectified is about 14s. per lb. in 1-cwt. lots.

CORIANDER.—B.P. oil is quoted from 77s. 6d. to 85s. per lb.

EUCALYPTUS.—70 to 75 per cent. eucalyptol on the spot is 4s. 9d. per lb.; 80 to 85 per cent., 5s. 6d.

FENNEL.—Spanish sweet on the spot is quoted at 10s. per lb., with Russian at 22s. 6d.

JUNIPER BERRY.—B.P.C. oil is from 12s. 6d. per lb. and Jugo-Slavian, 14s. on the spot. English-distilled is 155s. JUNIPER WOOD, from 5s.

LAVANDIN.—Spot is from 13s. to 15s. per lb. for original drums.

PEPPERMINT.—*Arvensis*: Chinese is 28s. per lb. on the spot and 27s. 3d., c.i.f. Brazilian, 18s. 6d., spot, and 17s. 9d., c.i.f. Formosan, July-August, 18s. 3d., c.i.f.; spot 18s. 6d., ex Continent, Italian "Mitcham"-type oil on spot is from 52s. 6d.; American, 28s. to 40s. as to origin.

Pharmaceutical Chemicals

ACETIC ACID.—B.P. glacial in 10-ton lots is £104 per ton naked and technical, £91. Carboys are £8 and demijohns, £10 per ton extra. Single carboys cost 1s. 8d. per lb. (3s. 8d. per kilo).

ASPIRIN.—Prices are as follows:—5-cwt. lots, 4s. 7d. per lb.; 1-cwt., 4s. 9d.

CHALK.—Prepared powder, B.P., is £22 per ton for minimum 1-ton lots ex makers' works.

DICOPHANE (DDT).—Prices are as follows:—1-cwt. lots 2s. 11½d. per lb.; 5-cwt., 2s. 10d.; 1-ton, 2s. 8½d.

HYDRAZINE HYDRATE.—Price per ton is £153 for the 10 per cent. (w/v) solution and £33 for the 2½ per cent.

PHOSPHORIC ACIDS.—B.P. (s.g. 1.750) is

WORLD TRADE

France Reimposes Quotas. — Import quotas have been reimposed by France to check her current trading deficit. A list of goods that escape quotas is being published shortly states the Finance Minister.

New Dutch Pharmaceutical Works. — New works of Merck Sharp & Dohme Nederland, N.V., were recently opened at Haarlem. For the time being, the works will be mainly engaged in the manufacture of corticosteroids and vitamin B₁₂. It is expected that about 90 per cent. of the output will be exported.

TRADE MARKS

APPLICATIONS ADVERTISED BEFORE REGISTRATION

From the "Trade Marks Journal," June 12

For essential oils and admixtures consisting principally of essential oils (3)

DEBONAIR, 762,696, by Dubarry Perfumery Co., Ltd., Hove, Sussex.

For toilet creams (not medicated) (3)

Device with word KERODEX, 761,802, by Scientific Pharmacals, Ltd., London, N.1.

For cleaning, polishing and scouring preparations; and soaps (3)

NOPCO, 763,707, by Nopco Chemical Co., Harrison, New Jersey, U.S.A.

For non-medicated toilet preparations, cosmetic preparations, lipsticks, brilliantine, hair lotions, toilet shampoos, dentifrices, soaps, perfumes, essential oils and toilet articles (3)

ROSMARANTE, 763,713, by Coty (England), Ltd., London, W.1.

For soap (3)

ROLOMATIC, 764,278, by Charles Frederick Sydney Nethercott & Herbert Charles Nias, London, S.W.6.

For pharmaceutical preparations and substances (5)

Device with word KERODEX, 761,803, by Scientific Pharmacals, Ltd., London, N.1. ABICOL, 761,944, by Boots Pure Drug Co., Ltd., Nottingham. MEDIHALER - TUSS, 762,694, by Riker Laboratories, Inc., Los Angeles, California, U.S.A. POLYNORM, 762,841, by Wallace Manufacturing Chemists, Ltd., London, N.W.3.

For disinfectants, germicides and sanitary substances (5)

IODRON, 761,825, by Gascoigne-Crowther, Ltd., Reading, Berks.

For pharmaceutical preparations and substances and infants' and invalids' foods, all containing malt (5)

TONIMALT, B762,633, by Genatosan, Ltd., Loughborough, Leics.

For all goods (5)

PASIF, B763,300, by Ashe Laboratories, Ltd., Leatherhead, Surrey. BENCID, BENVILLE, 763,343-44, by C. I. Bencard, Ltd., London, N.W.10. VUSENOI, 763,542, by Vasenol-Werke Dr. Arthur Kopp, K.G., Oberndorf-Neckar, Germany. GEVILON, NIDANTIN, 763,585-586, by Warner-Lambert Pharmaceutical Co., Wilmington, Delaware, U.S.A. AERYNOX, 764,119, by the Wellcome Foundation, Ltd., London, N.W.1.

For electric razors and parts (8)

SUNBEAM SHAVEMASTER, 732,372, by Sunbeam Corporation, Chicago, Illinois, U.S.A.

COMING EVENTS

Items for inclusion under this heading should be sent in time to reach the Editor not later than first post on Wednesday of the week of insertion.

Thursday, July 4

WEST HAM ASSOCIATION OF PHARMACISTS, Knebworth house, Hertfordshire. Visit. Coach picking-up points: At 1.10 p.m., corner of Glenly Road and Longbridge Road, Barking; at 1.15 p.m., Ilford Lane, corner of Windsor Road; at 1.20 p.m., Ilford Hill; at 1.40 p.m., Stratford Broadway, outside Boardman's.

PRINT AND PUBLICITY

COMMERCIAL TELEVISION

PROGRAMME details are given to enable chemists to put in linking-up displays if they wish. Notice given is as far in advance of the programme date as can be guaranteed by the broadcasting companies.

Sunday, July 7

LONDON: Air-wick, Petal Dew cream deodorant. Fresh-air, Ibcoll, Miraglo, Safada cream shampoo. Optrex eye lotion, Pure Silvikrin. Silvikrin shampoo. Lip-Glo, Panstik.

MIDLAND: Nivea, Elastoplast, Angel Face, Steradent, Opas tablets, Alka-Seltzer, Linc-o-lin beer shampoo, Astral cream, Val-pak.

NORTH: Steradent, Sure Shield fruit-flavoured laxatives. Linc-o-lin beer shampoo. Astral cream, Val-Pak.

ALL: Toni home perm, Prom home perm, Top Secret.

Monday, July 8

LONDON: Air-wick, Anadin, Anne French, Fresh-air, Elastoplast, Nivea, Prom home perm, Andrews liver salt, Dettol, Opas tablets, Beecham's powders, Astral cream, Silvikrin shampoo, Yeast-Vite, Val-Pak.

MIDLAND: Angel Face, Sanpic, Lip-Glo, Astral cream.

NORTH: Air-wick, Pepsodent, Nurse Harvey's mixture, Cephos, Germolene, Beecham's powders, Silvikrin shampoo, Alka-Seltzer.

ALL: Phyllosan, Knight's Castile soap.

Tuesday, July 9

LONDON: Fresh-air, Elastoplast, Nivea, Optrex eye lotion.

MIDLAND: Pepsodent, Optone eye drops, Band-Aid, Yeast-Vite, Val-Pak.

NORTH: Air-wick, Prom home perm, Zoflora, Secto aerosols, Yeast-Vite.

ALL: Germolene, Phyllosan, Knight's Castile soap.

Wednesday, July 10

LONDON: Fresh-air, Elastoplast, Nivea, Delsey

C. & D. WEEKLY LIST OF PRICES

A = Advanced; R = Reduced; I.R.P. = Inclusive Retail Price; § = Tax 15 per cent.; * = Tax 30 per cent.; † = Tax 90 per cent.

ANGLO-FRENCH DRUG CO., LTD. (from June 3)

Naftiodine (Logeais) am- Doz. I.R.P.
poules A 10 mils 6 70 0 9 7 A

ELLIMAN, SONS & CO., LTD. (from July 1)

Elliman's universal embrocation* 2½ oz. 18 4 2 6 A
4 oz. 25 8 3 6 A

royal embrocation* 4 oz. 25 8 3 6 A
10 oz. 48 10 6 8 A

athletic rub* 3 oz. 19 6 2 8 A

G. T. FULFORD CO., LTD. (tax exemption) (from July 1)

Dr. William's pink pills 15 6 A 1 9
36 0 A 4 0

W. T. OWBRIDGE, LTD. (from July 1)

Owbridge's lung tonic* 14 7 2 0 A
25 5 3 6 A
36 5 5 0 A
pastilles* 8 6 1 2 A

P.A.T.A. LIST

(Alterations notified this week by the Proprietary Articles Trade Association.)

MANSTON MEDICAL PRODUCTS, LTD.

Noxacorn corn remover* 15 3 2 1 A

THOMAS MARNS, LTD.

Iron-ox tablets* 13 6 1 10 A
31 9 4 4 A

Juno-Junipah salts* 53 3 7 3 A
tablets* 19 6 2 8 A

OSBORNE GARRETT & CO., LTD.

Decker's bay rum† 20 0 4 0 A

PARKINSONS, LTD.

Kilkof* 13 10 2 0 A

ADDITIONS TO THE LIST

POTTER & CLARKE, LTD.

Potter's Antasma tablets* 12 14 3 2 0

36 36 0 5 0

NEW PRODUCTS AND PACKS

ALLEN & HANBURYS, LTD.

Cymogran Each

 kilo 145 0 217 6

toilet tissue. Astral cream.

MIDLAND: Prom home perm, Pepsodent, Angel Face, Sanpic, Alka-Seltzer, Lip-Glo, Phyllosan.

NORTH: Cephos, Phyllosan.

ALL: Twink home perm, Yeast-Vite.

Thursday, July 11

LDNDDN: Fresh-air, Pepsodent, Delsey toilet tissue, Flit insecticide, Dettol, Mothaks, Ibcoll, Miraglo, Secto aerosols, Beecham's powders.

MIDLAND: Air-wick, Immac, Elastoplast, Nivea, Robinson's orange "smash." Andrews liver salt, Germolene, Yeast-Vite.

NORTH: Anadin, Prom home perm, Robinson's orange "smash," Optone eye drops, Opas tablets, Germolene, Phyllosan.

ALL: Twink home perm.

Friday, July 12

LONDNN: Air-wick, Fresh-air, Prom home perm, Delsey toilet tissue, Germolene, Yeast-Vite.

MIDLAND: Immac, Elastoplast, Nivea, Prom home perm, Angel Face, Flit insecticide, Andrews liver salt, Sanpic, Band-Aid, Germolene.

NDRTH: Elastoplast, Nivea, Nurse Harvey's mixture, Flit insecticide, Cephos, Zoflora, Phyllosan, Yeast-Vite.

ALL: Twink home perm, Silvikrin shampoo.

Saturday, July 13

LONDNN: Fresh-air, Robinson's lemon barley water, Optone eye lotion, Lip-Glo, Beecham's powders, Phyllosan, Astral cream, Alka-Seltzer, Val-Pak.

MIDLAND: Air-wick, Elastoplast, Nivea, Angel Face, Robinson's orange "smash," Steradent, Sanpic, Rotasan, Zoflora, Band-Aid, Beecham's powders, Astral cream, Pure Silvikrin.

NORTH: Air-wick, Vodex, Robinson's orange "smash," Steradent, Sure Shield fruit-flavoured laxatives, Pure Silvikrin.

ALL: Moorland indigestion tablets, Pepsodent tooth-paste, Andrews liver salt, Vita Glucose tablets, Beecham's powders, Knight's Castile soap.

C. & D. WEEKLY LIST OF PRICES

A = Advanced; R = Reduced; I.R.P. = Inclusive Retail Price; § = Tax 15 per cent.; * = Tax 30 per cent.; † = Tax 90 per cent.

CLAY & ABRAHAM (MFNG.), LTD.

	Doz.	2	3
Candol*	14	6	2

COUNTY LABORATORIES, LTD.

	small jar	2	0
Silvikrin hair cream†	10	6	2
	large jar	15	10

	liquid shampoo*	3	0
	large bottle	21	8

DENDRON DISTRIBUTORS, LTD.

	Larson's S.M.D.	7	6
	60	0	22
	180	0	6

DISTILLERS CO. (BIOCHEMICALS), LTD.

	Distaquaine V tablets	Each	8	3
	120 mgm.	5	6	58
	100	38	10	10
	240 mgm.	12	10	15
	100	76	8	115

DRESTON BEAUTY PRODUCTS

	Dreston hair lacquer†	5	6
	41	3	9
	refill†	3	2

E. GRIFFITHS HUGHES, LTD.

	Sno-Stik*	22	0
	Doz.	3	0

G. D. SEARLE & CO., LTD.

	Dramamine tablets	123	0
	50 mgm.	500	8
	Vallestril tablets 3 mgm.	50	2

GLAXO LABORATORIES, LTD.

	Penicillin-V tablets	296
	125 mgm.	500
	197	4

L. REES & CO., LTD. (ISOVAC DIVISION)

	Isovac vacuum flask§	6	4
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PERIHEL, LTD.

	Travelux Royal shaver*	176	0
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UCAL, LTD. (distributors, CHELSPA, LTD.)

	Ucalon lozenges*	16	16	2	6
	36 x 16	15	0	6	4



**Two weapons
against
Athlete's
Foot
and other
fungal dermatoses**

Amongst people in all walks of life Mycil Ointment and Powder have become established as preparations of undoubted effectiveness in the treatment of athlete's foot.

Both preparations are non-mercurial. Both are effective in prophylaxis as well as in treatment.

Mycil Powder is also recommended to combat the effects of excessive perspiration.

'MYCIL'

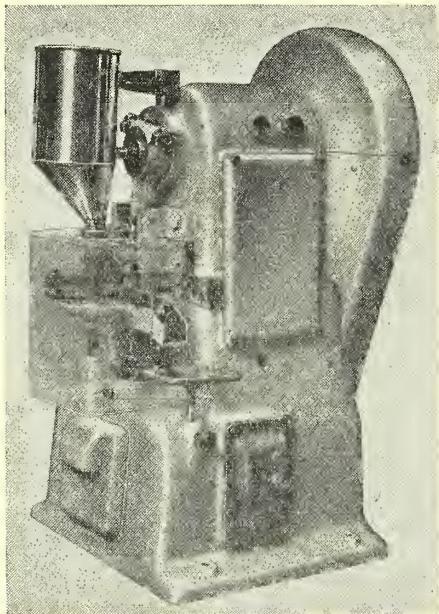
TRADE MARK

TRADE RETAIL

OINTMENT—collapsible tubes	1/6	2/9
POWDER—sprinkler tins	1/6	2/9



THE BRITISH DRUG HOUSES LTD. LONDON N. I.



ROTARY and SINGLE PUNCH TABLETTING MACHINES

OINTMENT MIXING and GRINDING MILLS

PUNCHES AND DIES FOR ALL TYPES OF TABLETTING MACHINES

Presses and Moulds for Gelatine Capsules



New LB.I. Type Bench Tableting Machine

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Telegrams: Wilkinson, Leicester 21283

Engineers and Specialists in Pharmaceutical Machinery for over 50 years.

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THE NEWSPAPER WITH THE LARGEST CIRCULATION IN NORTHERN IRELAND

THE MOST **COMPREHENSIVE** **RANGE** OF PHARMACEUTICAL MACHINERY FOR

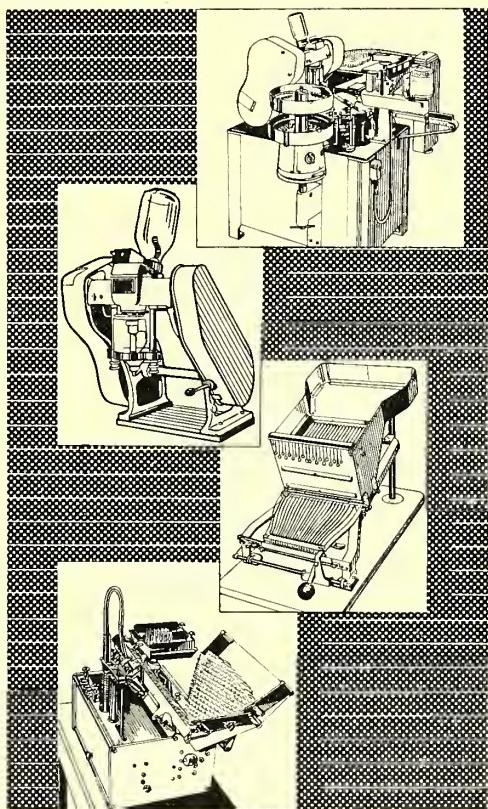
ampoule washing, cutting, filling and sealing. Vial filling, rubber bunging, cap-spinning. Tablet counting. Weighing, and packaging of all types of powdered materials. Closure inserting machines and screw-capping machines for vials and bottles.

Autopack equipment will be found in almost every pharmaceutical laboratory throughout the world. The range of over 100 machines enables you to select, from standard equipment, that most suited to your individual needs.

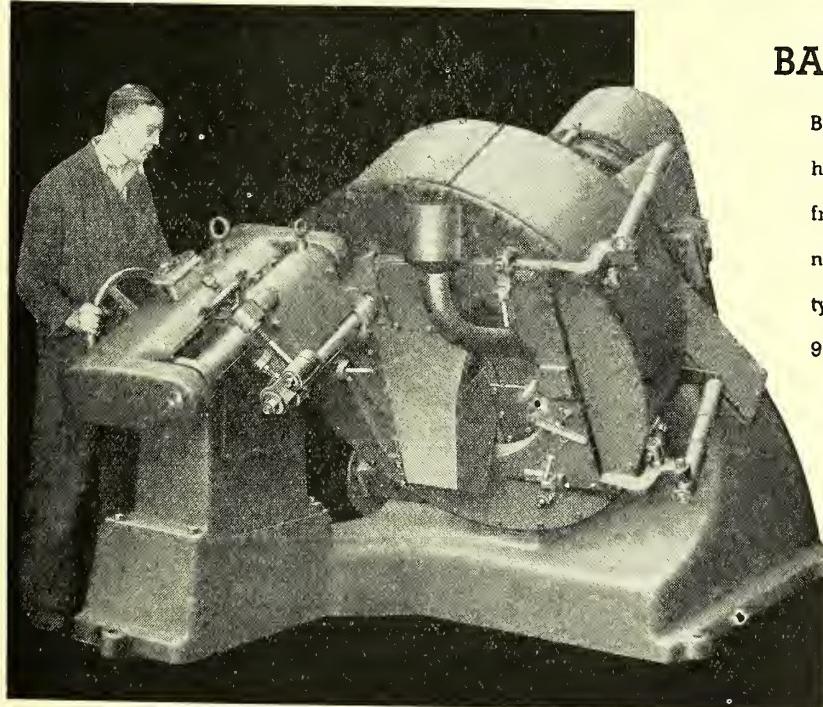
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Autopack sales and service facilities are available in most countries of the world.



A U T O P A C K L T D . Caroline St. Birmingham 3



BATCH PRODUCTION

Broadbent's electrically driven high-speed Centrifugals process freely filtering materials and non-filtering slurries, and with types and sizes ranging from 9" to 72" basket diameter are ready to solve your separating problems quickly and efficiently

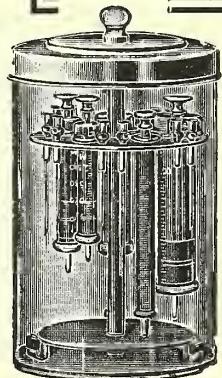
Technical advice on receipt of enquiry

PHONE 5520/5

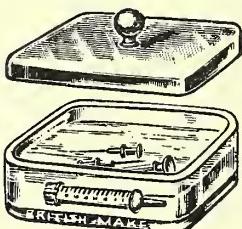
THOMAS BROADBENT & SONS LTD HUDDERSFIELD

A. SEARLE & CO.

SURGICAL INSTRUMENT MANUFACTURERS



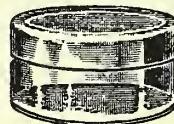
Syringe Steriliser with Extending Rack



Syringe Steriliser Tray



Ligature Winder



Glass Needle Box

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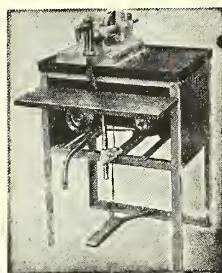
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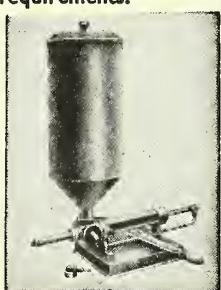
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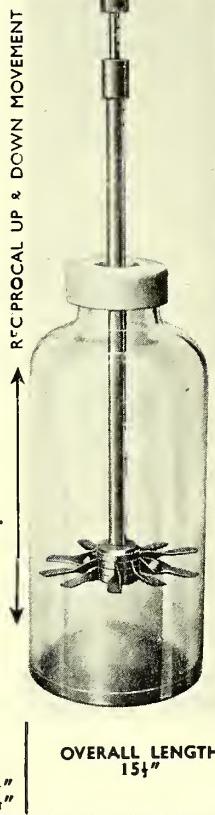
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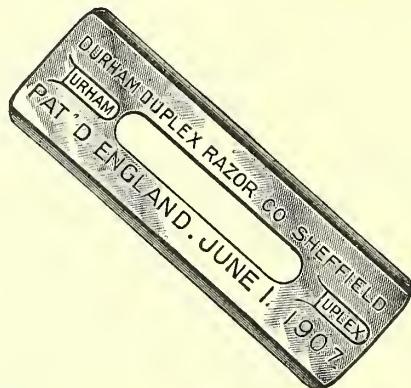
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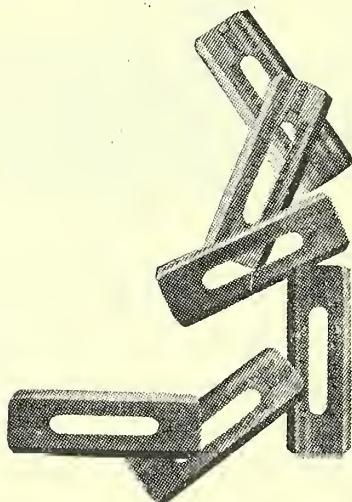
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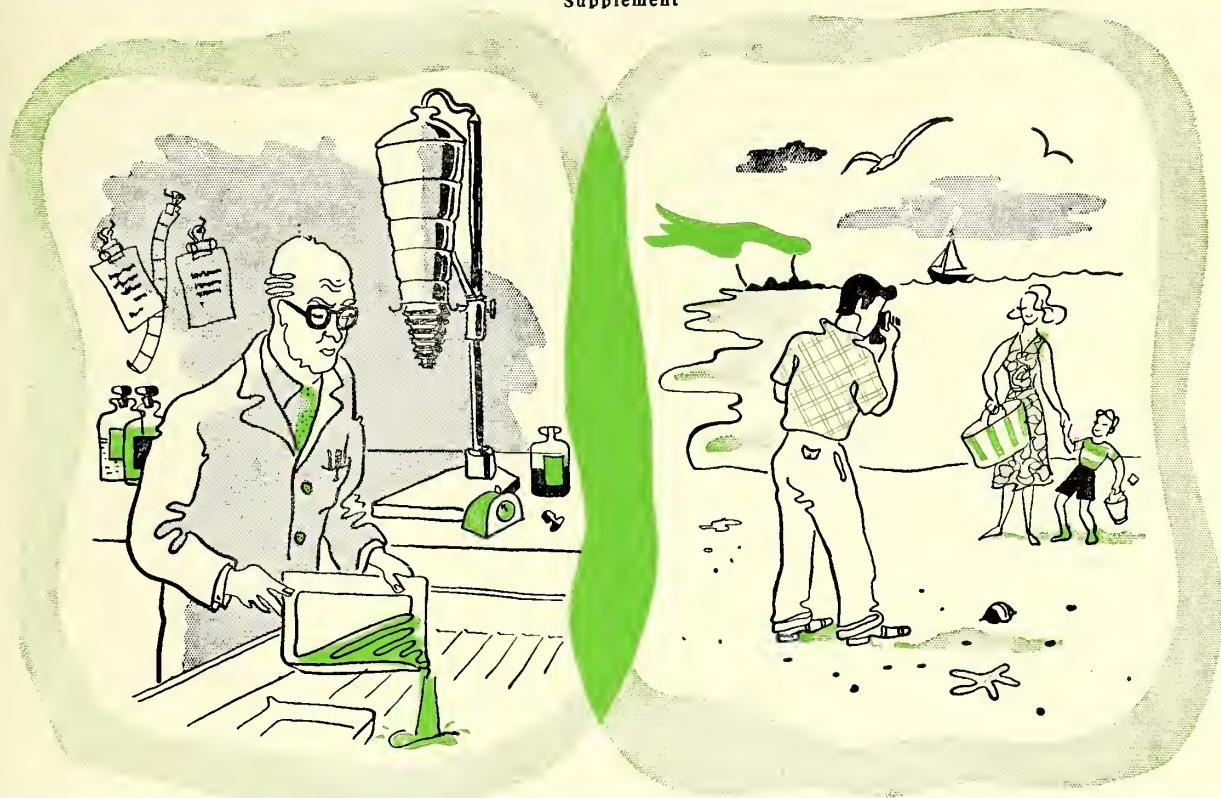
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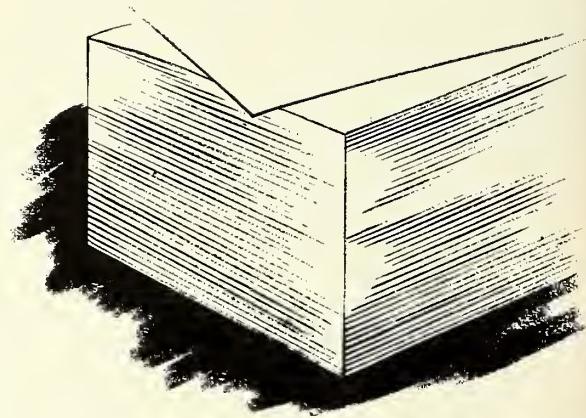
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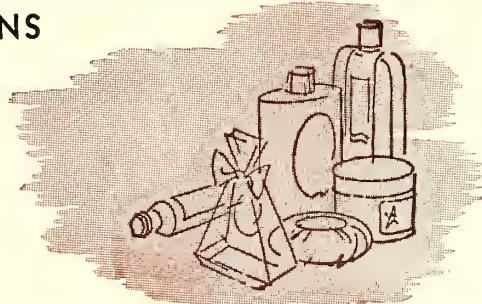


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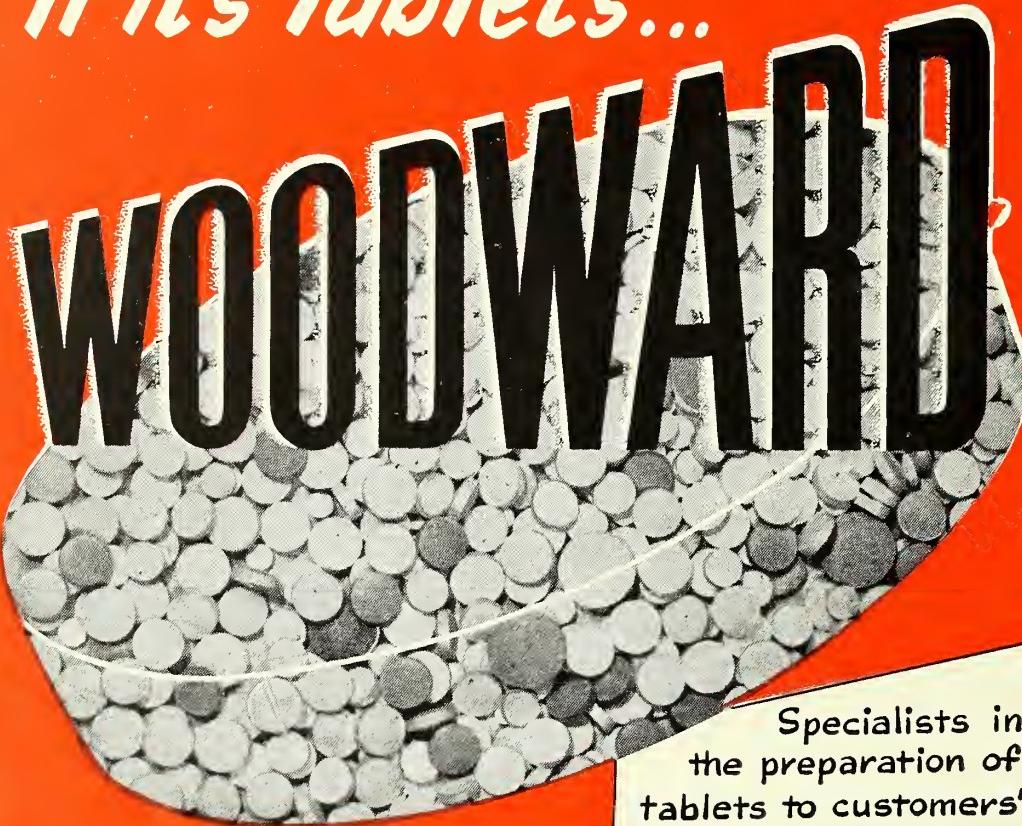
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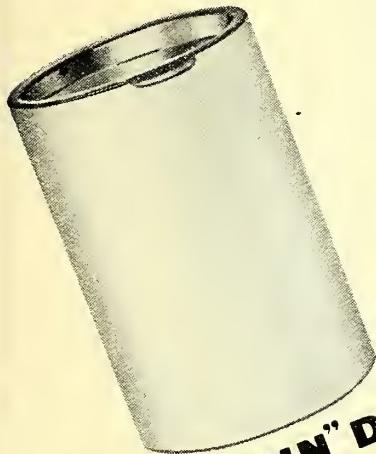
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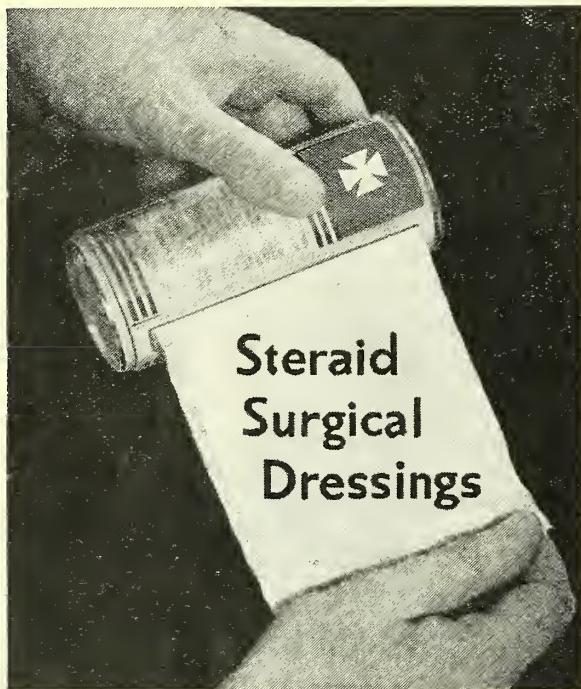
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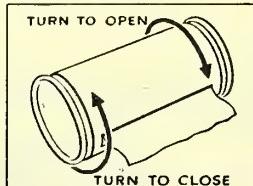


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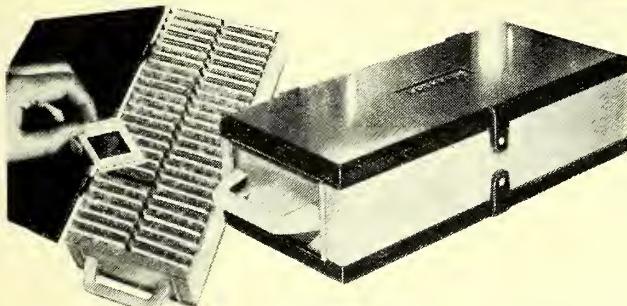
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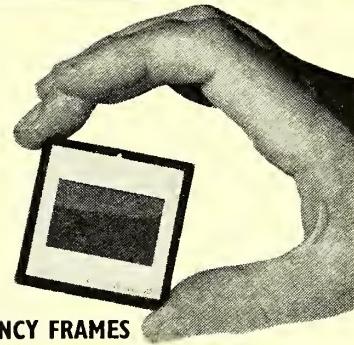
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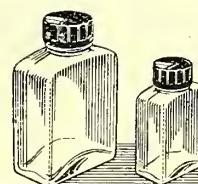
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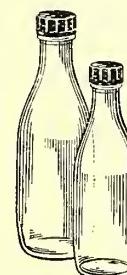
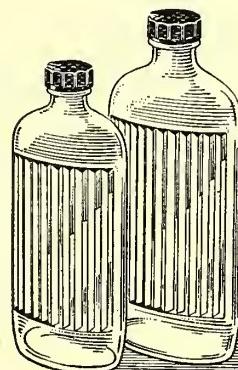
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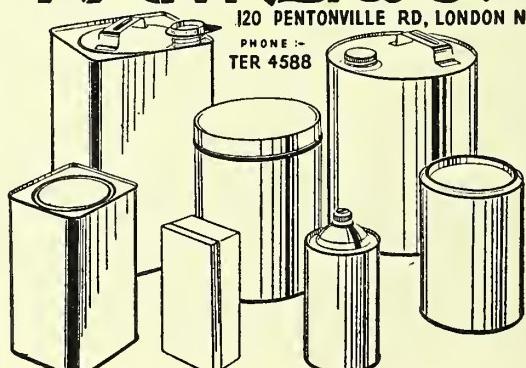
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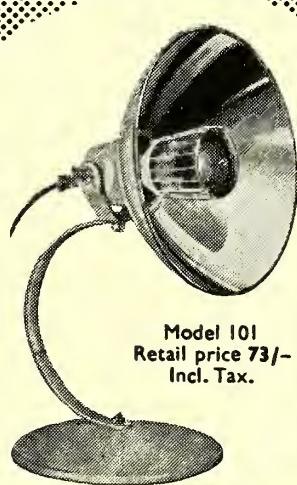
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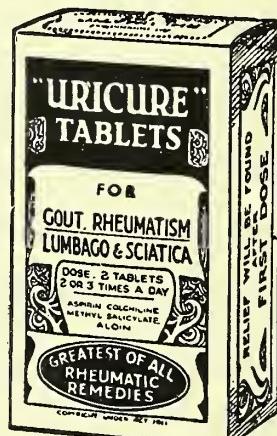
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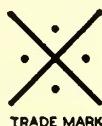
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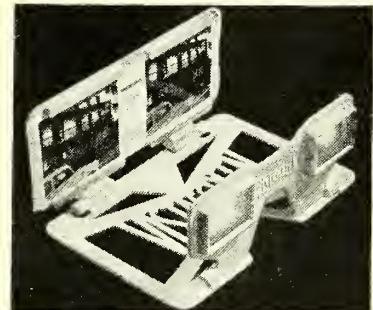
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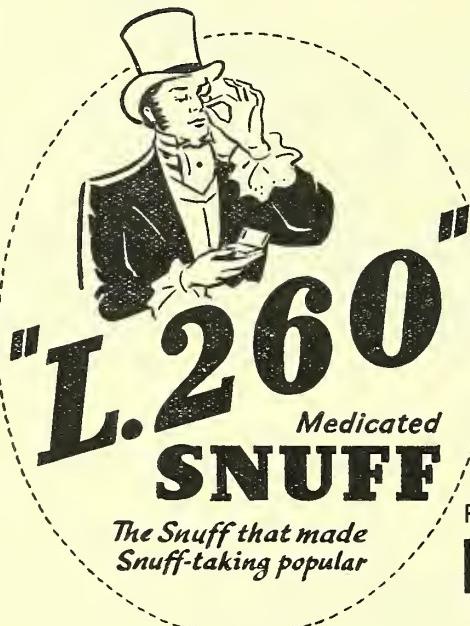
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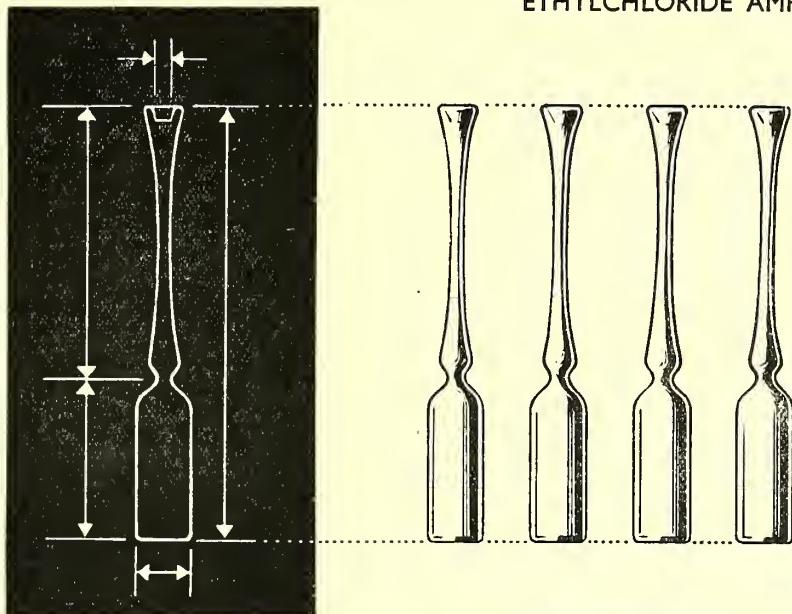


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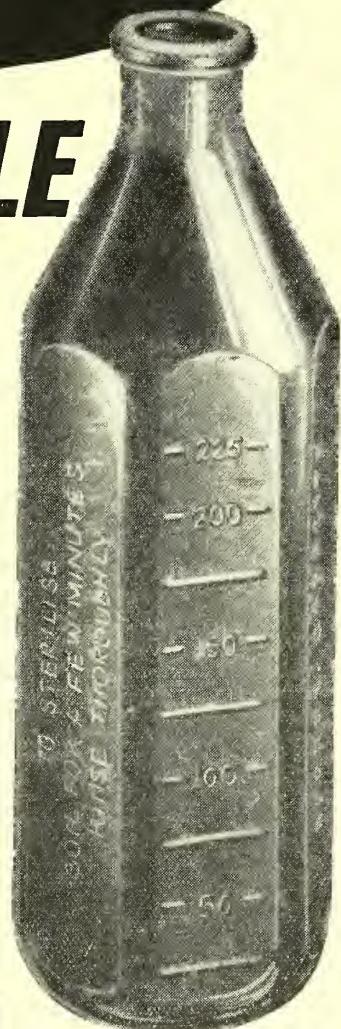
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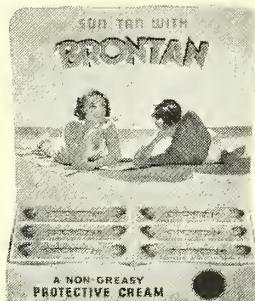
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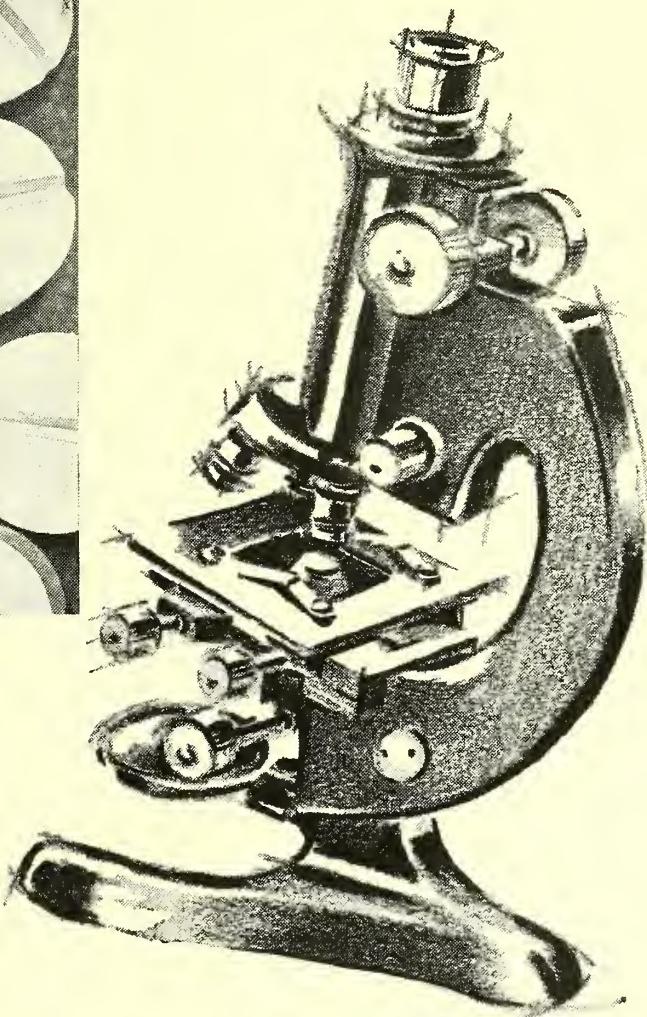
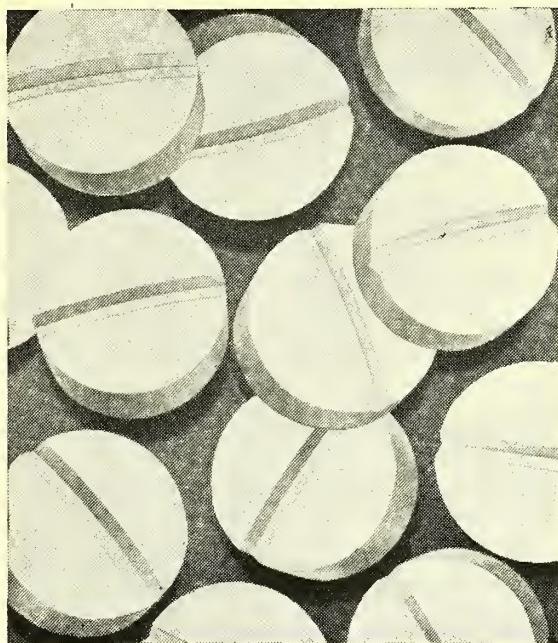
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EDGWARE GENERAL HOSPITAL, EDGWARE, MIDDLESEX

Senior Pharmacist

Applications are invited for the post of Senior Pharmacist. Salary and conditions of service in accordance with the recommendations of the Whitley Council. Salary scale £650 p.a. plus £30 (6)-£830 p.a. In addition London Weighting is payable according to age. Apply immediately in writing stating age, qualifications and experience and the names and addresses of two referees to Group Secretary, Edgware General Hospital. C 6720

HIGHBURY HOSPITAL, BULWELL, NOTTINGHAM

Pharmacist—Full-time

Applications are invited for the above post. The post offers opportunity to obtain experience in general pharmaceutical work. Salary and conditions in accordance with the Pharmaceutical Whitley Council regulations. Applications, stating age, qualifications and names of two referees, to be sent to the Hospital Secretary. C 6665

HOSPITALS FOR DISEASES OF THE CHEST

Pharmacist or Senior Pharmacist

Applications are invited for the post of Pharmacist or Senior Pharmacist at The London Chest Hospital. Salary in accordance with the Whitley Council scales. Applications, stating age, qualifications and experience, accompanied by two testimonials, to the House Governor, London Chest Hospital, E.2. C 6742

KIDDERMINSTER GENERAL HOSPITAL, WORCS

Pharmacist

required at the above hospital to assist the Chief Pharmacist. Salary £580 rising by annual increments to £785. Applications, in writing, together with age, experience and qualifications to the Hospital Secretary. C 6792

KING EDWARD VII HOSPITAL, WINDSOR

(Category III Hospital)

Pharmacist

required. Apply with details of service and names of three referees to secretary. C 6768

LAMBETH HOSPITAL, BROOK DRIVE, S.E.11

Assistant-in-Dispensing

required at the above hospital. Whitley Council rates of pay and conditions. Applications in writing, giving names of two referees to the Secretary. C 6333

LEYTONSTONE (No. 10) HOSPITAL GROUP

Assistant-in-Dispensing

required at Whipps Cross Hospital, London, E.11.

Salary according to age and experience rising to a maximum of £490 per annum plus London Weighting. Applicants must possess the Apothecaries' Hall Certificate in respect of which an additional £20 per annum is payable. Preference will be given to applicants with previous hospital experience. Application forms from the Hospital Secretary, to be returned as soon as possible. C 6770

KNOWLE HOSPITAL, FAREHAM, HANTS

Assistant-in-Dispensing

Applications are invited for the post of Assistant-in-Dispensing at the above hospital (non-resident). Salary and conditions of service in accordance with the Pharmaceutical Whitley Council Regulations. Applications, stating qualifications and the names and addresses of two referees should be sent immediately to the undersigned.

M. WALSH,
Group Secretary,
Knowle Hospital Management Committee.
C 6775

MEDWAY & GRAVESEND HOSPITAL

MANAGEMENT COMMITTEE,
ST. BARTHOLOMEW'S HOSPITAL,
ROCHESTER
(201 beds)

Pharmacist

(full-time or part-time) required for busy general hospital; good experience. Recognised salary scale and conditions of service. Applications, giving full details of experience and names of two referees, to the Hospital Secretary. C 6783

METROPOLITAN HOSPITAL, KINGSLAND ROAD, LONDON, E.8

Locum Pharmacist

required immediately. Salary 16 guineas per week. Apply to Hospital Secretary (Telephone: Cli. 6862). C 328

NAPSBUCK MENTAL HOSPITAL, Nr. ST. ALBANS, HERTS

Locum Tenens Dispensing Assistant

required (Hall Certificate). Salary £9 5s. 8d. per week. Applications endorsed "Locum Dispensing Assistant" to Group Secretary, Napsbury Mental Hospital, as soon as possible. C 6750

MILLER GENERAL HOSPITAL, GREENWICH, S.E.10

Assistant-in-Dispensing

permanent or locum required. Whitley Council rate and conditions. Apply Chief Pharmacist. Tel.: Tideway 1136. C 6745

NAPSBUCK MENTAL HOSPITAL, Nr. ST. ALBANS, HERTS

Locum Pharmacist

required at 16 guineas per week. Details to the Group Secretary, with names of two referees, in an envelope to be endorsed "Locum Pharmacist." C 6751

QUEEN MARY'S HOSPITAL FOR CHILDREN, CARSHALTON, SURREY

Locum Assistant-in-Dispensing

required immediately for indefinite period. Salary according to Whitley Council scales plus London Weighting.

Applications stating age, qualifications and experience with the names and addresses of two referees should be sent to the Group Secretary, Queen Mary's Hospital for Children, Carshalton, Surrey. C 329

Appointments—Continued**PINEWOOD HOSPITAL,
NINE MILE RIDE, WOKINGHAM**

Locum Chief Pharmacist
required from August 26 to September 14. Salary £16 16s. per week. Resident post if required. Applications to Secretary, Pinewood Hospital, Nine Mile Ride, Wokingham. C 6671

**ROYAL FREE HOSPITAL,
GRAY'S INN ROAD,
LONDON, W.C.1****Senior Pharmacist**

Applications are invited for the post of Senior Pharmacist. Salary in accordance with Whitley Council scale. Applications, with names and addresses of two referees, should be addressed to the Group Chief Pharmacist. C 6725

**ST. BARTHOLOMEW'S HOSPITAL,
LONDON, E.C.1****Senior Pharmacist**

Applications are invited for the appointment of senior pharmacist, with special responsibility for the work of the manufacturing section of the Department. Whitley Council scales. Write, Chief Pharmacist. C 6790

**ST. HELIER HOSPITAL,
CARSHALTON, SURREY**

(731 beds)

Senior Pharmacist

Applications invited for above post. General acute hospital (category V); well-equipped pharmaceutical dept. The successful applicants will be responsible for the manufacture and issue of ward stocks within hospital and also for issues to the other 9 hospitals in Group. Salary (plus London Weighting) in accordance with Whitley Council scale. Good canteen facilities. Apply, giving names of two referees to the Secretary. C 6763

**ST. LAWRENCE HOSPITAL,
CHEPSTOW, MON.
(127 Plastic Surgery,
50 Orthopaedic Beds)****Dispenser**

(Apothecaries' Hall or equivalent) required. Salary 22 or over £395—£510. Age 18 £225, 19 £235, 20 £270, 21 £310. Pleasant Department with good accommodation. Write quoting two referees to T. A. Jones, Group Secretary, 64 Cardiff Road, Newport, Mon. C 6776

**SWINDON AND DISTRICT
HOSPITAL MANAGEMENT
COMMITTEE****Assistant-in-Dispensing**

Applications invited for post of Assistant-in-Dispensing in Group Pharmacy. Candidates should be over age 22. Salary £375 p.a. rising to £490 p.a., plus £20 p.a. for holders of A.H. Certificate or equivalent. Approved conditions. Application forms from Secretary, 7 Okus Road, Swindon, to be returned as soon as possible. C 6777

**THE LONDON HOSPITAL,
WHITECHAPEL, E.1****Registered Pharmacist**

Vacancy exists for the above post. Salary £580 x £30 (6)—£760 x £25 (1)—£785 according to previous experience and service. Accommodation available for women staff, if required, in hotel in Kensington run by the hospital. Write to House Governor. C 6780

**THE MILLER GENERAL
HOSPITAL,
GREENWICH, S.E.10
(180 beds)****Locum Pharmacist**

required for indefinite period in modern dept. at above hospital. Salary by arrangement. Applications to Chief Pharmacist. (Tideway 1136-9). C 6746

**THE ROYAL MARSDEN
HOSPITAL,
FULHAM ROAD, S.W.3****Assistant-in-Dispensing**

Salary in accordance with Whitley Council scales, e.g., at age 22—£395 per annum, rising to £520 (including London Weighting). Holders of the Apothecaries' Hall Certificate receive an extra £20 per annum. Apply, with names of two referees, to the House Governor. C 6765

**WEST MIDDLESEX HOSPITAL,
ISLEWORTH, MIDDLESEX**

Pharmacist and Assistant-in-Dispensing
required. Whitley salary and conditions applicable. Applications stating age, qualifications and experience with names of two referees to Chief Pharmacist. C 6786

**WOLWICH GROUP HOSPITAL
MANAGEMENT COMMITTEE****Locum Pharmacist**

required at St. Nicholas Hospital, Tewson Road, Plumstead, S.E.18 (Tel.: Woolwich 1441). Salary £16 16s. per week. Apply to the Chief Pharmacist at the hospital. C 6784

SITUATIONS VACANT**RETAIL (HOME)****ARMY & NAVY STORES, LTD.**

Victoria Street, S.W.1

5 minutes from Victoria Station

A vacancy exists for a Pharmacist to take charge of the Dispensary, six assistants. Hours 9—5.30. (Sats. 1 p.m.) Pension Scheme, Staff Restaurant. Shopping privileges.

Write or call Staff Manager, 12 Artillery Row, London, S.W.1. C 331

BERKSHIRE TOWN. Manager for private pharmacy. Younger man preferred. Flat with garden and garage. Prospects of interest and eventual succession. Box C 4747.

BOOTS THE CHEMISTS invite applications for engagement as Pharmacists. Good prospects, permanent basis, salary according to age and experience, eligibility for Pension and Life Assurance, etc. Applications should be made to Retail Staff Department, Station Street, Nottingham, or alternatively through the nearest branch to the local Territorial General Manager stating age, experience and district preferred. C 6717

EAST MIDLANDS. Pharmacist required to manage large new modern branch near Peterborough. An attractive self-contained modern flat is now being completed and will be available at a reasonable rent. Salary to commence, up to £1,000 per annum, according to experience. This is a permanent, superannuated post with excellent conditions of employment and prospects. Apply giving full particulars to Peterborough Co-operative Chemists, Ltd., Park Road, Peterborough. C 4739

EVENING WORK to 7.15 p.m. Experienced unqualified gentleman required for busy pharmacy, Earls Court. Mainly dispensing. Excellent salary. Box C 4762.

KENSINGTON. Lady Pharmacist, married or single, for interesting post combining private and N.H.S. dispensing with cosmetic and counter trade. Friendly person sought who will take an increasing share of control. Salary fully in line with requirements. Present holiday arrangements respected. Telephone for appointment Kensington 1857 or 8916. C 4754

MIDLANDS (INDUSTRIAL TOWN). Pharmacist-manager (preferably between the ages of 35 and 50) required for substantial and very old-established family and dispensing business; applicants should be well experienced in ethical pharmacy and capable of controlling staff; attractive basic salary plus bonus on net profit, and if desired a financial interest (either immediately or at a later date) can be arranged; good living accommodation available if required. The opportunity is an exceptional one for a chemist with first-class personality and organising ability. All replies will be treated in the strictest confidence, and should be forwarded initially to Box C 6760.

NEWCASTLE-UPON-TYNE DISTRICT

Managing Pharmacist required shortly to open shop with monopoly position on pleasant semi-rural private estate.

New flat available. Good salary, share of profits for qualified man with drive and initiative. This is a permanent position with great scope. Write Box C 6774

PHARMACIST required for good-class private business in South-west London riverside suburb. Congenial position. Accommodation if required. Please reply with particulars to Box C 4734.

UNQUALIFIED ASSISTANT, lady or gentleman, required for counter and dispensing duties in Twickenham area in a pleasant pharmacy. Replies to Box C 4735 with particulars.

YORK CO-OPERATIVE CHEMISTS SOCIETY, LTD., offer positions to pharmacists of either sex in lovely City of York. One of these positions carries tenancy at moderate rental of a modern flat in one of the best residential suburbs. All are permanent, progressive and pensionable positions with good wages. Apply Superintendent Pharmacist, 22 Railway Street, York. C 327

£14 10s. per week. 40 hours nett distributed over five days. Tuesdays free. Permanency offered to experienced unqualified gentleman. Mainly dispensing. Kensington. Please give full particulars. Box C 4761.

RETAIL (OVERSEAS)

ASSISTANT for Retail Pharmacy in British West Indies. Experienced, unqualified, single preferred (30). Adequate salary commensurate with experience. Passage money paid. Reply Box C 4742.

WHOLESALE**ALLIED LABORATORIES, LTD.**

Applications are invited for the position of medical representative for the Hampshire area. Previous experience not necessary but applicants must have good pharmaceutical background, be resident on territory preferably in Southampton, and car ownership an advantage. Remuneration by salary and expenses, with commission from this established territory. An attractive pension/life assurance scheme is in operation. Write with full details in confidence to Sales Manager, Allied Laboratories, 140 Park Lane, London, W.1. C 6719

A VACANCY exists for the post of Medical Representative in Northern Ireland, in an established company specialising in the sale of ethical preparations to the medical profession. Knowledge of the area and experience in the field of medical propaganda an advantage. Good salary and expenses. Car provided. Pension scheme. Write for interview giving full details to the Manager, Medical Division, Calmec, Ltd., Crewe Hall, Crewe, Cheshire. C 6730

ALLIED LABORATORIES, LTD.

Medical Representative required for South Yorkshire. Previous experience in this work is not essential but applicants should have a good medical or pharmaceutical background, reside on the territory, preferably in the Sheffield area, and be car owner. Remuneration is by salary, commission and expenses. An attractive pension scheme is in operation. Applications, giving details of career to date, should be addressed to Sales Manager, Allied Laboratories, Ltd., 140 Park Lane, London, W.1. C 6727

BECAUSE of expansion of our Sales Force there are vacancies throughout the country for representatives to call on doctors, hospital and retail pharmacists. Applicants should have some pharmaceutical background or training and should be between 25-35 years. Previous selling experience will be an advantage. Remuneration is by salary and a prize scheme is operated. Expenses are allowed, company car provided and there is a non-contributory pension scheme. Applications giving full particulars of education and past experience should be addressed to Sales Manager, Lederle Laboratories Division, Cyanamid of Great Britain, Ltd., Bush House, Aldwych, London, W.C.2. C 332

BOOTS PURE DRUG CO., LTD., have a vacancy in the Veterinary and Horticultural Division of their Development Laboratory for a Qualified Chemist, preferably with industrial experience, to work on the formulation and development of veterinary and animal husbandry products. Applications should be addressed to the Personnel Manager, Station Street, Nottingham. C 6733

ALKA-SELTZER**JUNIOR REPRESENTATIVE**

aged about 25, with some experience of selling branded goods to retail chemists, required to cover East Midland territory comprising Notts, Lincs, Leics, Norfolk, Suffolk, Northants, Beds, Cambs, Oxon, Bucks and Herts. Connection desirable, but not essential. Excellent prospects. Car provided, expenses paid, superannuation scheme.

Apply, in own handwriting, giving full details to Sales Manager (Confidential),
Don S. Momand, Ltd.,
Nuffield House,
Piccadilly, London, W.1

C 6767

Situations Vacant—Continued

COSMETIC FIRM of world repute needs cosmetic chemist with experience in all branches of manufacture, etc. Five-day week. Good salary. Excellent canteen. Please reply to Box C 4759 stating age and qualifications.

DEVELOPMENT CHEMIST, male or female, for pharmaceutical development laboratory (Portsmouth area). Applications invited from newly qualified pharmacists. Previous experience in pharmaceutical manufacture preferred, in development laboratory an advantage. Salary according to experience up to £900. Five-day week, non-contributory pension scheme. Canteen. Apply with full details experience, education to Personnel Manager, Box C 6788.

MEDICAL REPRESENTATIVE required for London area. Applicants between 25 and 40 years of age will be considered. A good pharmaceutical background is an important asset. Previous experience as medical representative not essential as full instruction will be given. Please state age and salary required. Box C 326.

PRODUCTION MANAGER with chemical knowledge to take charge of manufacture of permanent waving reagents, shampoos and hairdressers' supplies. Permanent, progressive post. Immediate appointment. Applications to Mr. L. Nash, Nintonia, Ltd., 590 Wandsworth Road, S.W.8. C 6781

PRODUCTION PHARMACIST

One of the leading British Pharmaceutical Houses, situated in the Greater London area, invites applications from Pharmacists to control the manufacture and packaging of ethical products. The posts offer considerable scope for initiative and development, with opportunities for experience in production and control methods. Contributory Pension Scheme. Five-day week. Apply initially in writing to Box C 6778.

REPRESENTATIVE required by London firm dealing in all surgical and hospital requirements. Area to be covered would be London, Greater London and Home Counties. Good salary and all reasonable expenses to suitable applicant. Apply for appointment. Box C 6599.

SALES representative required by H. Bromley & Co., Ltd., to fill a vacancy for established territory in North-eastern England. Residence in Yorkshire preferred. Remuneration mainly salary, plus commission, full expenses and staff superannuation. Apply briefly in writing, stating detailed experience, age and past earnings to the Secretary, H. Bromley & Co., Ltd., Warble Way, London, W.3. C 6782

UNQUALIFIED lady assistant wanted drug department, chemists' wholesalers. Box C 4757.

ALKA-SELTZER
JUNIOR REPRESENTATIVE

aged about 25, with some experience of selling branded goods to retail chemists, required to cover S.W. England territory comprising Berks, Hants, Wilts, Dorset, Somerset, Devon and Cornwall. Connection desirable, but not essential. Excellent prospects. Car provided, expenses paid, superannuation scheme.

Apply, in own handwriting, giving full details to Sales Manager (Confidential),
Don S. Momand, Ltd.,
Nuffield House,
Piccadilly, London, W.1

C 6766

THE DISTILLERS COMPANY, LIMITED
Chemists or Pharmacists

The following vacancies for men aged not over 30 exist at the Speke, Liverpool, factory of The Distillers Company (Biochemicals), Limited.

Pharmacist

A pharmacist is required in the pharmaceutical control laboratories; duties will involve co-operation with the manufacturing departments. Candidates should hold a degree or other pharmacist qualifications; experience in hospital work or in control laboratory work in the pharmaceutical industry is desirable, but not essential.

Chemist or Pharmacist

A chemist or pharmacist is required to develop new tablet formulations and processes up to the large-scale manufacturing stage. Candidates should hold a degree in chemistry or pharmacy, or its equivalent, or other pharmacist qualifications, and should have experience in tablet making together with the ability to plan and conduct experimental work, including stability studies, leading to recommendations for full-scale production.

Chemist or Pharmacist

A chemist or pharmacist is required to plan and conduct original experimental work leading ultimately to the large-scale manufacture of new formulations. Candidates should hold a degree in chemistry or pharmacy, or its equivalent, or other pharmacist qualifications; previous experience in pharmaceutical development is desirable, but not essential.

For all the above appointments salaries will be in accordance with experience and qualifications. Non-contributory pension scheme. Write: Staff Manager, The Distillers Company, Limited, 21 St. James's Square, London, S.W.1. Quote Ref. 34/57. C 6753

WELL-ESTABLISHED London Chemical manufacturers are interested in contacting a Sales Representative already calling on industry in S.W. England and Wales and who can carry additional lines on a commission basis. An established entry to manufacturing chemists as well as the soft drink and confectionery industries is of particular importance. Write with full details to Box 304, Walter Skinner, Ltd., 20 Copthall Avenue, London, E.C.2. C 6759

WE WISH to appoint salesmen already calling on retail chemists to handle a newly developed product of national interest. Commission only. Box C 4753.

TABLET MAKER

Winthrop Laboratories, Ltd., invite applications from experienced Tablet Makers for a position in their new Pharmaceutical Manufacturing Factory at Fawdon. This is first-class Ethical work only and the successful candidate will be able to participate in a pension and life assurance scheme, subsidised canteen and first-class welfare facilities.

Applications with details of age, education and experience to date should be made to:

The Labour Manager,
WINTHROP LABORATORIES, LTD.,
Edgfield Avenue,
Newcastle-upon-Tyne, 3

C 6758

WHOLESALE (OVERSEAS)**WEST AFRICA**

A Pharmaceutical Company of world renown requires for its branch in West Africa a Pharmacist as BRANCH MANAGER.

The duties involved in the appointment will include the responsibility for the importation and marketing of various ethical pharmaceutical and veterinary products and other closely allied products, and the day to day running of the branch.

The appointment will probably be filled by a single man or married man without children aged between 28-35 who has had previous managerial experience in the pharmaceutical industry and who has a working knowledge of accounts.

The commencing salary, whilst relating to age and experience, will be commensurate with the high degree of responsibility involved. The general conditions of service are excellent.

Applications giving fullest details as to age, qualifications, previous experience, etc., to Box C 6791.

EXPERIENCED INDUSTRIAL PHARMACIST for erecting, supervising and running a Pharmaceutical factory in Pakistan, to produce Antibiotics and other Pharmaceutical specialities. Salary according to qualifications and experience. Apply giving complete details of qualifications and experience and also the salary demanded and if possible copies of testimonials to Box C 4765.

REPUTABLE manufacturing firm of Pharmaceuticals and Chemicals in India require the services of a highly qualified European Chemist-technician to head and supervise the manufacture of solvents such as Ether, Chloroform and other Pharmaceutical specialities both oral and injectable, and undertake to start the manufacture of other chemicals such as Acetone, Butanol, etc. Suitably remunerative short/long term contracts offered. Apply stating qualifications, experience, and preferred remuneration and period of contract to Box No. S.10761, Intam, Ltd., 14 Half Moon Street, London, W.1. C 6738

ROCHE

THE CHANCE OF A STEADY CAREER

Fine opportunities at home and abroad are offered to outstanding young men with drive and initiative wishing to start as medical representatives. Good salary, exceptional pension scheme, full expenses; successful applicants are assisted to own their own cars. First-class candidates desiring success and security should apply with full details to the Secretary, Roche Products Ltd., 15 Manchester Square, London, W.1. Applications will be treated as confidential.

C 6741

AGENTS WANTED

ADDITIONAL LINES. Agents in the following selected areas: N.E. England, Manchester, Liverpool & West Coast, Newport and Cardiff, Bristol and West, S.E. England, Birmingham, are offered Scissors, Tweezers, Nail Files and Clippers for sale direct to retail establishments at generous commission rates by reputable Sheffield firm. Details in strictest confidence to Box C 4733.

AGENTS required, desiring additional product known and used extensively, calling on hospitals, doctors and pharmacists with liberal commission. Box C 4750.

GELEE ROYALE is now available in this country from Sole Distributors, HEALTH-CRAFTS, LTD., Manor House, Worcester Park, Surrey. Agents required. State connections and area. C 6497

REPUTABLE COMPANY of manufacturers, wholesalers and importers of a great range of chemist sundries amongst some very well known brands, require representative on very high commission, in fact equal to profit sharing, for West of England, Wales and Cheshire. Well introduced and energetic hard working gentleman can earn substantially, providing he carries one or two other lines too. Replies under Box C 6623.

SALESMASTER SHOPFITTINGS, LTD., require additional agent with connections in the retail chemists' trade. Details to Salesmaster Shopfittings, Ltd., Dept. L.B., Corn Exchange, Fenwick Street, Liverpool, 2. C 6761

SITUATIONS WANTED RETAIL (HOME)

QUALIFIED, 60, active, requires post as manager, "Chemist," Bridge House, Pentrewillan, Llandysil. C 4756

LOCUMS SEEKING ENGAGEMENTS

EXPERIENCED qualified lady chemist (Ireland) available for locums July to September. Managing, dispensing, counter work. London area preferred. Reply 6A Wetherby Gardens, London, S.W.5, or phone Freemantle 7836. C 4745

THE CHEMIST AND DRUGGIST Supplement

EXPERIENCED REPRESENTATIVE FOR POTTERIES & MANCHESTER DISTRICT

with strong personal connection required. Applicants should have experience in selling Drugs, Galenicals and Packed Goods. Age 30-50 years. We are doing substantial business in the area and regard this appointment as important. Remuneration will be substantial. New car provided.

Apply with full details to:

SALES DIRECTOR, JOHN RICHARDSON & CO., LEICESTER, LTD., EVINGTON VALLEY ROAD, LEICESTER.

C 6779

WM. R. WARNER & CO., LTD.

have a vacancy for a Medical Representative in the Newcastle area. The man we select will be between 25 and 35 years old and must reside on the territory, he must be of good appearance, pleasing personality and though not essential, should possess some experience in this type of work, at least some pharmaceutical or medical background is desirable. The appointment is permanent, progressive and offers opportunities for promotion. The standards we demand are high but the rewards we offer are considerable. Thorough training will be given, a non-contributory pension scheme is in operation and a car will be provided.

The company also has two vacancies for trainee representatives aged 22-25, they will work mainly in the London area but must be willing to travel anywhere in the country possibly for short periods to assist established representatives. Write in confidence to Personnel Manager, Wm. R. Warner & Co., Ltd., Power Road, London, W.4.

C 6789

WHOLESALE

GENTLEMAN, with long comprehensive executive experience of the pharmaceutical and cosmetic trade, retail, wholesale, manufacturing, Home and export. Seeks change, Box C 4746. **MAN** with medical background including three years at a University would consider suitable offer from reputable firm. Box C 4763.

WANTED

LARGEST CASH BUYERS of photographic equipment of every description, outdated film and paper, etc. Spears, 14 Watling St., Shudehill, Manchester, 4. Phone: Blackfriars 1916. Bankers: Midland Bank, Ltd. C 306

MEDICAL BOTTLES, tablet bottles, closures and all types of packaging materials purchased, no quantity too large. Samples and full details to Noel Davold & Co., 9 Laurence Pountney Lane, Cannon Street, E.C.4. Mansion House 3951-2. C 178

WANTED: Glycerol mono-stearate powder. Apply Box C 6773.

WANTED: Small Wiley or Apex type grinding mill, suitable for disintegrating leather and similar materials. Box C 4752.

WE WILL PURCHASE for cash a complete stock, a redundant line, including finished or partly finished goods, packing raw materials, etc. No quantity too large. Our representative will call anywhere. Write or telephone:— Lawrence Edwards & Co., Ltd., 6/7 Wellington Close, Ledbury Road, London, W.11. Tel.: Bayswater 4020 and 7692. C 140

AGENCIES WANTED

AGENT with established connection with chemists in Northern Ireland and the Isle of Man seeks additional lines. Box C 4755.

MISCELLANEOUS SALES

BANDAGES, wrapped assorted sizes, 2 in., 2½ in., 3 in., 4 in., 4½ in. Total about 20 gross. Offered at 21s. per gross plus carriage for not less than 1 gross. S. Coleman, 87 Fetter Lane, E.C.4. C 6769

100 BAYS of brand new adjustable steel shelving, 72 in. high by 34 in. wide by 12 in. deep, stove-enamelled bronze green. Sent knocked down—6 shelf bay—£3 15s. Sample delivered free. Quantity discounts. N. C. Brown, Ltd., Eagle Steelworks, Heywood, Lancs. Telephone: 69018. C 6554

CHAMOIS LEATHERS

SPECIAL OFFER. Approximate size 26 in. x 14 in. Individually Cellophane Wrapped. ONLY 5s. 6d. each. (Minimum order 12 skins). Discount for quantities. 1 Kip (30) less 5 per cent.; 5 Kips less 7½ per cent.; 10 Kips less 10 per cent. ORDER NOW. County Chamois Co., Ltd., Rocky Lane, Aston Cross, Birmingham. C 6771

FOR SALE. Approximately 40,000 new square pulp boxes with fitted lid, all internally waxed. Size 10 in. x 10 in. x 3 in. Samples on request. Apply: Fisons Pest Control, Ltd., Harston, Cambridge. C 6780

FOR SALE: 3½ oz. deodorant blocks (round), 100 per cent. pure paradichlorbenzene. Violet perfume. Cellophane wrapped with plain label. Approx. 1,500, boxed dozens. Offers required. Box C 4766.

FOR SALE: 2-20 gallon steam jacketed pot stills, iron; 3 iron reflux condensers; 1 stainless steel tank; 5 ft. 10½ in. high x 3 ft. 3 in. dia, with brass tap and stand; 1 brush homogeniser. Offers, Box C 4751.

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**FREE LIST FROM
L. FRANKENBERG, LTD.,
37 HOUNDSDITCH,
LONDON, E.C.3**

C 269

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(opposite St. Pancras and King's Cross Stations)

Wanted immediately good class businesses in London, Home Counties and South Coast. Private clients waiting with cash up to £10,000.

● All Valuations and Stocktakeings, carried out under personal supervision of principals.

Established 1870

Phone: TERminus 3574

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The Trade Marks set out below were assigned on May 17, 1957, by Delalande & Quignon-Neodrog of 16 Rue Henri Regnault, Courbevoie (Seine), France, to Michel Delalande of 18 Bis Rue Henri-Heine, Paris, without the goodwill of the business in which they were then in use.

No.	Mark	Goods
713165	ETOPHYLATE	Pharmaceutical Preparations and substances
716535	KHELLAMONE	do.
718985	HEPTANYL	do.
719886	THEVILINE	do.

C 4758

MISCELLANEOUS

BETTER DUPLICATE BOOKS at lower prices. Specialist equipment enables us to produce attractive, specially printed duplicate books at amazingly low prices. List free. Brown, Ltd., Caldervale Works, Burnley, Lancs. C 318

MORTGAGE funds available for 1st and 2nd mortgages on all classes of property. Write for particulars (B.8), A. Lewis, 5 King's Gardens, London, N.W.6. C 4764

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MELKSHAM WILTS C 304

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Shadeine!

Keep it **DARK**
with
SHADEINE

Still the best hair tint. In all natural Shades. Stocked by all Wholesalers. Trade Prices: 1-oz., 21/- per doz.; 2-oz., 36/- per doz. Purchase Tax 90%. Retail prices, 3/11 and 6/8½ per bottle respectively.

Also the new GOLDEN SHADEINE for lightening mousey hair. 2-oz. size at 21/- per doz. Purchase Tax 90%. Retailing at 3/11 per bottle.

THE SHADEINE COMPANY LTD.
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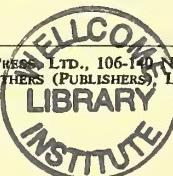
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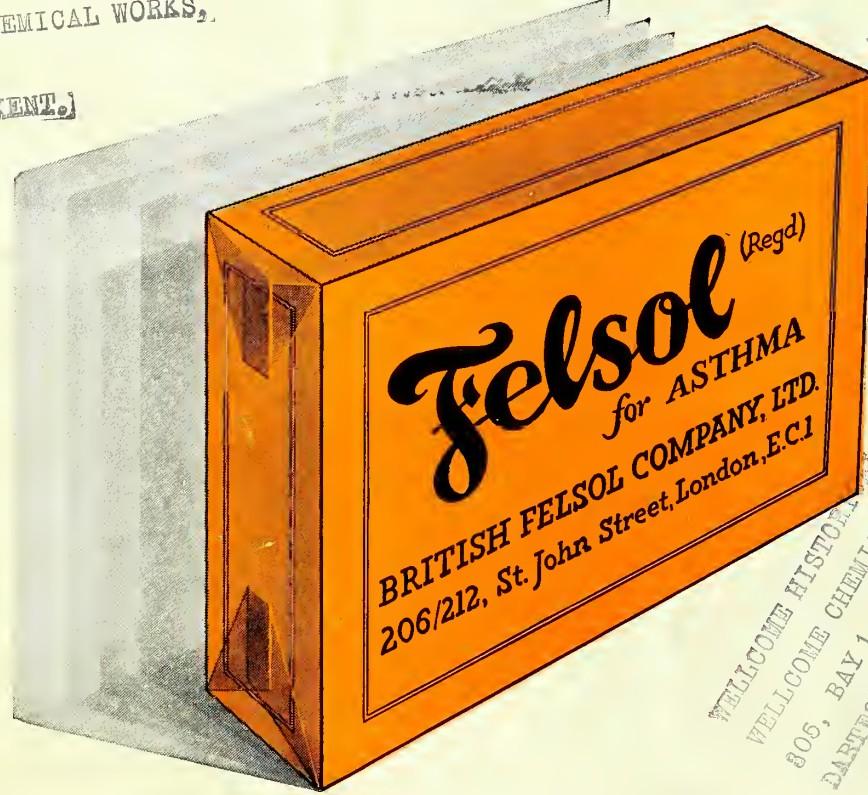
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